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Servosity Boosts Its Backup Solutions With Aberdeen's AberSAN ZXP

THROUGH ITS BACKUP and disaster recovery offerings, solution provider Servosity provides a very important service for managed service providers and IT resellers. The company's backup services are deployed using cloud infrastructure, which requires servers and storage that can handle the mission-critical data collection and protection needs of multiple clients. For Servosity, reliable storage is a No. 1 concern, and the company was in need of a solution that could solve a number of difficult problems.

"We had some very tough challenges," says Damien Stevens, founder and CEO of Servosity (www.servosity.com). "We needed 24/7/365 operations with no maintenance windows or unplanned downtime [and] unlimited growth capabilities, and we needed the speed of SAS drives and the sophistication of an Enterprise SAN—and we needed all that for far less the cost of an enterprise SAN or even SAS drives. We needed SAS performance and reliability on a SATA budget."

Choosing The Right Solution

Servosity knew it wanted to take advantage of Nexenta's NexentaStor NAS/SAN software platform, but it also knew it would need the right hardware to run it. That's why Servosity opted for two of Aberdeen's AberSAN ZXP High Availability ZFS SAN units and one 45-bay JBOD in order to handle the NexentaStor XZFS file system with 144TB of licensing. Servosity chose Aberdeen's



Aberdeen AberSAN ZXP High Availability ZFS SAN



The AberSAN is a highly customizable and versatile storage solution that incorporates Intel® Xeon® 5600/5500 Series processors and is designed to be both scalable and safe. Aberdeen offers a variety of configuration options and will work with companies to fine-tune the solution to meet their specific needs. The AberSAN uses a ZFS file system to avoid traditional data corruption issues and prevent stored information from being irreparably damaged or lost.

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one of the few vendors that can custom-build a hardware solution designed specifically for NexentaStor. It's the perfect marriage of hardware and software."

Aberdeen's AberSAN ZXP product is designed to be highly scalable and has a variety of other customizable options. For instance, the base solution is a 2U

Implementation & Results

Stevens admits that Servosity had some unique needs from the start and that it would be difficult to match them, so he knew there would be challenges along the way. "With some of these technologies, we've been a very early adopter," Stevens

units to Servosity and providing advice and expertise that aided the company in building the perfect solution for its needs.

"With a sophisticated system spanning multiple data centers and huge amounts of storage, there's much more to it than buying a product," Stevens says. "The difference for us has been Aberdeen and Nexenta working together with our engineers to custom-build and then custom-tune a system that meets our needs and has exceeded our expectations."

Once the entire system was installed, Servosity started seeing the benefits. Stevens says that traditional systems such as the one the company installed are often at risk for "silent data corruption," which happens naturally over time with a constant flow of data. To prevent this, ZFS systems self-heal when a disk presents corrupt data, which protects against hardware failure and prevents the hardware from corrupting the data, according to Stevens. In addition to preventing data corruption, Servosity is pleased that the system can use solid-state drives to cache for SATA and SAS drives to make the system faster for a lower cost.

Using Aberdeen's Products Now & In The Future

Overall, Servosity is extremely happy with its decision to invest in Aberdeen's AberSAN solution and plans on using Aberdeen's products in the future. In fact, Stevens says that Servosity's projections "show a need for 400% of our current infrastructure in the next 12 months." To help meet the demand, Servosity will continue to use Aberdeen for its highly customizable and scalable Nexenta products in order to help the company continue to grow. **P**

"The ZFS file system is stable, scalable, and fast."

- Servosity's Damien Stevens

AberSAN solution for its versatility as well as its ability to work well with the NexentaStor platform.

"The ZFS file system is stable, scalable, and fast," Stevens says. "On top of that, Nexenta's NexentaStor commercial offering adds additional features as well as enterprise support, and Aberdeen is

head unit, but there are options for 3U and 4U JBOD expansions, as well. There are also multiple power supply, OS, and storage options so companies can build the right model for their needs. It's this customization that allowed Servosity to deploy these products and know they would perform as expected.

says. Because of this, Servosity went through an extensive testing phase to find the right balance of hardware and software to get the performance it needed. He says Servosity wouldn't have been able to create the perfect solution to its problem without the constant support of Aberdeen, which included the company sending evaluation

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Research Firms Release Tech Predictions For 2012 & Beyond

Gartner Highlights The Cloud & Consumerization Of IT

Ahead of the new year, research firm Gartner announced a number of predictions for technologies and trends that it sees being major factors in the IT space in the years to come. Chief among its expectations is its belief that increasing consumerization and more processes being moved to the cloud will shift IT budgets and responsibilities away from IT departments and more toward those of business managers, so adaptability is key. Specifically, its predictions include the following:

- **Inexpensive cloud services will capture up to 15% of top outsourcers' revenue by 2015.**
- **At least half of email users in the enterprise will eschew desktop clients in favor of browser, mobile, or tablet clients by 2016.**
- **40% of enterprises will require proof of independent security testing before using any type of cloud service by 2016.**
- **More than half of Global 1000 companies will store customer-sensitive data in the public cloud by the end of 2016.**
- **35% of most organizations' IT expenditures will be managed outside the IT department's budget by 2015.**

IDC Predicts Emphasis On Big Data & Mobile Technology

Fellow research firm IDC also got in on the year-end predictions, with much of its attention focused on spending in the Big Data, cloud, and mobile arenas; it also predicts increased competition among industry leaders in those markets. Here are some of IDC's predictions:

- **Spending on cloud services, social networking, mobile computing, and big data analytics technologies will grow about 18% per year and will account for 80% or more of IT spending growth by 2020.**
- **Overall IT spending will grow 6.9% year over year to reach \$1.8 trillion in 2012.**
- **Mobile devices will pass PCs in shipments and spending in 2012; similarly, mobile app revenue will surpass mainframe revenue.**
- **Established cloud vendors will face competition from smaller providers that are rapidly gaining ground.**
- **Big Data will be the next big thing in 2012, as data volumes increase to 2.7 zettabytes.**
- **Spending on mobile data networks will surpass spending on fixed data networks for the first time.**

Lam Research To Buy Novellus Systems

Lam Research will buy Novellus Systems for about \$3.3 billion, or \$44.42 per share, in an all-stock deal. Both companies manufacture semiconductor chips, each specializing in a separate process. After the deal is finalized, Novellus stockholders will own about 41% of the combined companies and Lam stockholders will own about 59%. The companies expect to complete the deal in the second quarter of 2012. The semiconductor market is weak at the moment with global economic uncertainties; semiconductor equipment spending is estimated to total \$64.2 billion this year and drop to \$51.7 billion in 2012, according to Gartner.

AT&T Drops T-Mobile Merger Quest, Will Pay \$4 Billion Fee

After voiced disapproval from government agencies and the private sector, AT&T is dropping its proposed buyout of T-Mobile. AT&T is now responsible for a \$4 billion breakup fee to Deutsche Telekom, T-Mobile's owner. The company had already withdrawn the merger application filed with the FCC in November. The \$39 billion merger faced criticism from the FCC and Department of Justice, as well as other cellular carriers, as the massive merger was considered anticompetitive in nature. AT&T maintained that the merger would have aided the U.S. wireless industry by adding wireless spectrum for increasingly data-hungry smartphone users. AT&T has, however, established a roaming agreement with Deutsche Telekom.

Intel Reorganizes Company Departments For Mobile Focus

Intel announced it will be forming a new mobile business group, combining four of its divisions (tablets, netbooks, mobile wireless, and ultra-mobility) into the new Mobile & Communications group. The company aims to strengthen its offerings in the smartphone and tablet markets, both of which are experiencing significant growth. Intel is currently the No. 1 chipmaker worldwide, excelling in the PC and server markets, but slips in the smartphone and tablet markets, which are dominated by the ARM architecture. A company spokesperson said the redistribution within the company will help to improve the development process of such technology and provide clear differentiation for Intel's mobile devices and components vs. the competition.

RIM Announces Q3 Earnings

Research In Motion announced its third quarter earnings for 2011, with revenue slightly higher from the previous quarter, but still not at levels reached last year. The company saw \$5.2 billion in revenue in the third quarter, a 24% increase quarter to quarter but a 6% drop compared to the \$5.5 billion in revenue in Q3 2010. Net income for quarter three reached \$265 million, a dramatic fall from \$911 million in net income last year at the same time. RIM attributes the lackluster growth to the meager sales of its BlackBerry PlayBook tablets. The company sold only 150,000 PlayBooks during the quarter.

ITC Bans Import Of HTC Android Devices After Ruling

A U.S. International Trade Commission ruling in favor of Apple's patent infringement lawsuit against HTC will block some HTC devices from being imported into the United States. The original complaint was filed by Apple in April 2010; the ITC found HTC in violation of patent infringement pertaining to certain allegations made by Apple, but not all allegations. Although this will not block the sale of HTC devices already in the United States, the company is planning to eliminate the patented technology from its devices. Google's Android operating system has been the target of many copyright infringement complaints of late, including allegations from Microsoft.

Seagate Buys Samsung HDD Business

After announcing its proposed acquisition of Samsung Electronics' hard drive business in April, Seagate Technology recently closed the deal, paying \$1.4 billion in both stock and cash for the HDD division. Together the companies control 40% of the HDD market, according to IHS iSuppli.

The merger will likely help Seagate after flooding in Thailand depleted much of the hard drive component supply. Seagate said a number of Samsung employees would move to Seagate in the transition, along with other assets and infrastructure. The companies extended their cross-licensing agreements and said certain Samsung HDD products will be sold under the Samsung name for the next year.

Apple Reportedly Acquires Israeli SSD Maker Anobit

According to Calcalist.com, an Israeli news site, Apple purchased Israel-based SSD manufacturer Anobit for a reported \$400 million to \$500 million. Apple currently uses Anobit technology in many of its devices, including the iPhone, iPad, and the MacBook Air. Samsung, a rival of Apple, is also a customer of the SSD maker. Although neither company would immediately confirm the acquisition, the Israeli Prime Minister commented on the deal shortly after the story was printed online. Anobit is best known for its controller, which uses Memory Signal Processing error correction code to enable the device to operate at full function even when surrounded by electrical interference.

Oracle Releases Lower-Than-Expected Results

Oracle announced results for the second quarter of its fiscal year 2012, which came in below what industry analysts had predicted. Revenue for the quarter ending Nov. 30 was \$8.8 billion, short of Wall Street analysts' estimates of \$9.23 billion. Although revenue is 2% higher compared to the same time last year, it was forecasted that the company would make a 6 to 16% gain. The number of new software licenses increased by only 2%; analysts expected at least double-digit growth here, as well. The lackluster growth caused Oracle stock to fall almost 8% after the announcement.

IBM Buys DemandTec

IBM announced it will purchase DemandTec, an e-commerce analytics vendor, for \$440 million, equaling \$13.20 per share. DemandTec specializes in business services cloud applications, which will help to boost IBM's e-commerce offerings. Specific services include pricing models and inventory strategies for retailers. DemandTec boasts about 450 customers, including Target and Walmart, but has suffered recent quarterly losses likely due to the high cost of its own products. The DemandTec products will soon be offered through IBM's Smarter Commerce product line after the acquisition is complete. The deal is expected to be finalized in Q1 2012.

Adtran Buys Nokia Siemens' Fixed-Line Broadband Unit

Adtran announced it will purchase Nokia Siemens Networks' fixed-line broadband access business. The portfolio includes DSL and GPON (gigabit passive optical networking) products and will help Adtran grow its business outside of the United States. In the purchase agreement, Adtran will gain all intellectual property retained in this business unit, and Nokia Siemens will include Adtran products in its own customer offerings. About 400 Nokia Siemens employees will transfer to Adtran after the acquisition, including engineers, sales personnel, and professional service employees. The two companies expect the deal to be finalized by April 2012 and have not released the financial terms of the purchase.

Hitachi & LG Execs Plead Guilty To Price Fixing

Three executives at South Korea-based Hitachi-LG Data Storage will soon be serving prison time in the United States as part of a plea deal for their involvement in a price-fixing scheme for optical disk drives. The three worked with other parties to suppress competition by rigging bids and fixing prices for optical drives sold to Dell, HP, and Microsoft between November 2005 and September 2009. Two of the execs, Young Keun Park and Sang Hun Kim, will serve eight months apiece in U.S. jail, and Sik "Daniel" Hur will serve seven months; additionally, each has been ordered to pay a \$25,000 fine.

Federal Government Launches Program To Boost Cloud Security

The U.S. federal government is launching a cloud security monitoring program called FedRAMP (the Federal Risk and Authorization Management Program), which aims to provide a higher level of security for government agencies using cloud services. The new program will require all cloud providers offering services to government agencies to meet specific security requirements; all government cloud service providers will be subject to government assessment, authorization, and monitoring. FedRAMP certifications will be continually updated by the Department of Homeland Security, the Department of Defense, and the General Services Administration. Those departments, along with the National Security Agency and third-party experts in the field, have been helping to develop the specifications since October.

Private Firm Buys Blue Coat Systems For \$1.3 Billion

Thoma Bravo LLC, a private equity firm, is set to purchase Internet security software maker Blue Coat Systems for about \$1.3 billion, with each stockholder receiving \$25.81 per share. This is the fourth-largest acquisition of an Internet security company since December 2006; the largest was Intel's \$7.7 billion acquisition of McAfee. Thoma Bravo investments typically center on business services and software; the company announced that the acquisition will not affect the products offered. Quarterly profits for Blue Coat have varied over the past year, with significant losses and a recent gain in profits.

Chrome 15 Unseats Internet Explorer In Global Browser Use

According to StatCounter, Chrome 15 is now the most-used browser worldwide, overtaking Internet Explorer 8, which was the previous No. 1 browser.

Internet Explorer 8 held the No. 1 spot since the beginning of 2010 and was just unseated by Chrome 15 during the first week of December. Although Chrome 15 is the most-used single browser version, all versions of Microsoft's IE combined (including IE6, IE7, and the newer IE9) represent the largest percentage of global browser users—38.5%. Google Chrome follows at No. 2 when combining all versions, and Mozilla Firefox takes third place. Additionally, when looking at U.S. users alone, IE8 still maintained its top position in the browser market ahead of Chrome 15.

EU Places Hold On Google/Motorola Mobility Acquisition Investigation

European Union antitrust regulators have suspended their investigation regarding Google's proposed acquisition of Motorola Mobility. The regulators are waiting on "certain documents" for additional evidence before they return to the investigation. Antitrust concerns center on Google's already powerful presence in the mobile, search, and advertising markets. The company's acquisition of Motorola Mobility would give it ownership of more than 17,000 patents that could be helpful in patent suits with competitors. Google filed for European clearance of the merger in November, and the U.S. review process is also awaiting more information from Google. The search giant expects the deal to close in 2012.

Study: Microsoft & Amazon Are Top Cloud Storage Providers

According to a study released by Nasuni, a storage and data services company, Microsoft and Amazon are the top cloud storage providers currently available. The "State of Cloud Storage" study found that over a two-year time period, Amazon S3 and Microsoft Windows Azure were both outstanding in terms of performance, stability, and scalability. The two providers also ranked at the top in terms of read/write speeds. Microsoft was No. 1 in terms

of read speed for sizeable files. Only six of the 16 cloud storage providers evaluated passed the company's criteria. Other companies at the top of the list include AT&T's Synaptic Storage-as-a-Service, Nirvanix, Peer1 Hosting, and Rackspace Cloud.

SSD Shipments Jump 66% In 3Q

According to research firm IDC, third quarter SSD shipments increased 66% compared to the same quarter last year. Manufacturers shipped more than 6.6 million SSDs during the third quarter, up from 4 million during the third quarter last year. IDC found that SSD revenue for the quarter increased to \$1.29 billion from \$673 million.

Revenues from the enterprise market segment, which includes data center storage arrays and servers, more than doubled to \$522 million during the third quarter. Revenues in the commercial segment fell to \$59.7 million from \$70.7 million a year ago, but client-side revenues more than doubled to \$716 million.

Microsoft & GE Form Joint Healthcare Venture

Microsoft and GE are partnering in a new joint venture to develop and market open-source clinical healthcare applications. Although the companies did not release an investment amount, Microsoft's Health Solutions Group and GE's Healthcare Knowledge and Connectivity Solutions group will be the respective divisions participating

in the project. Microsoft will contribute to the project with its Microsoft Vergence and expreSSO products, while GE will offer its GE Healthcare eHealth HIE (health information exchange) platform. The venture is expected to launch globally in 2012 and will be headquartered near Microsoft's headquarters in Redmond, Wash.


iSuppli Changes PC Shipment Estimate After Thailand Floods Close Plants . . .

After massive flooding in Thailand caused many hard disk drive manufacturing plants to close, IHS iSuppli re-evaluated its PC shipment forecast for 2012. The research firm estimates there will be 3.8 million fewer PCs sold in the first quarter of 2012. In August, IHS forecasted 88 million units to ship in the first quarter, but it recently lowered the number to an estimated 84.2 million units after the Thailand plants were forced to shut down production. The notebook market will be most affected, as it is the device most impacted by the HDD shortage, according to the firm. Notebook sales are still expected to rise, but at a much slower growth rate than previously expected.

. . . & Intel Lowers Its Own Revenue Forecasts Because Of The Shortage

Intel recently announced that it no longer expects to reach its sales forecast for the fourth quarter because of the shortage of hard drives due to the flooding in Thailand. The company said its inventory stockpile is slowly dwindling and is facing an issue of supply, not demand; Intel expects PC sales to rise quarter to quarter. The company is experiencing shortages now and predicts this issue will linger through the first quarter of next year. Fourth-quarter sales were originally estimated at \$14.2 billion to \$15.2 billion; Intel lowered the forecast to \$13.4 billion to \$14 billion. Other companies, such as Dell and HP, have made similar assessments due to the hard drive shortage.





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All products listed have been released recently, so use this section to get up to date with what’s new on the market and to find products you need.

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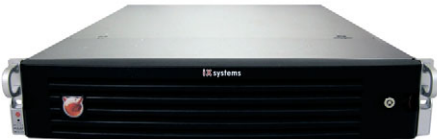
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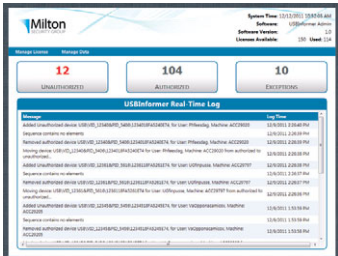


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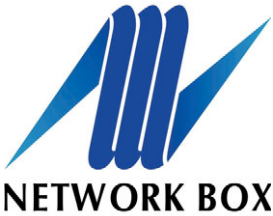


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BUYING TIPS:

Email Security Appliances



EMAIL SECURITY is a critical component of any organization, and any appliance tasked with safeguarding email communication needs to be efficient and reliable. Here are the essential elements you need to consider when comparing email security appliances.

Total cost. “The acquisition cost is only part of it,” says Damien Ramé, marketing manager at Vircom (www.vircom.com). Service and support options, renewals, updates, and upgrades are also key factors. In addition, he says, IT admins will likely keep the appliance for a while, and if it’s adequate, they’ll stick with the same vendor. “Therefore, the longer-term costs must be evaluated and fit within the allocated budget,” Ramé says.

Availability, security, and other features. Before purchasing an email security appliance, Joe Fisher, executive vice president of worldwide marketing at Axway (www.axway.com), says you should “think holistically about the problem set” facing your organization. “What is best going to serve the business, both today and in the future?,” he asks. “What you don’t want to do is roll out a solution that solves the problem yet demands that every month you have to reinvest in it.”

Businesses rely on email around the clock. That necessitates 24/7 protection on the part of the security system, Ramé says. “The appliance must have built-in redundancy for the power supply and the hard disks,” with a minimum of RAID 1 data mirroring protection, he says.

“Email security appliances do a lot of disk I/O for storage, reporting, quarantining, and archiving. For larger organizations, this is often a bottleneck,” Ramé says. “Fast hard drives and RAID 5 configurations provide increased disk throughput and redundancy and are ideal for this kind of appliance.”

Fisher cites a need for flexible scaling both up and down the capacity scale as your organization’s needs change over time. After all, he says, “the volume of email isn’t going down.”

Device security is also essential, Fisher says. “Does the solution meet your security profile? Does it have the right certifications from a FIPS standpoint? Is that important? Are they using the right encryption algorithms for securing the data?” An IT data center manager or messaging architect should think about business, security, and architectural needs before choosing a product, he says.


Fisher also recommends choosing an appliance that has the right controls,

governance, and visibility for your organization. “It’s not only an IT operational thing; there are business unit requirements, and perhaps even C-level requirements, that may need to be met.”

Watch vendor claims. Vendors often tout high spam filtering rates and low false positive rates. But both can be exaggerated, Ramé says. Instead, the proof of an appliance’s merit is in independent tests from neutral third parties.

Also, when evaluating vendors and their offerings, Ramé says you need to ask these important questions: Does the company excel at service and support?

Can it actually solve the problems you may experience, or will it ask you to reboot the appliance every time there is a glitch? Does it offer overnight replacements for defective units? Are the units maintenance-free, or do they require weekly tuning and fixing?”

Ease of use. Both the administrator and user interfaces of an email security appliance need to be easy to navigate, Ramé says. They might be accessible via browser, console, or installed app, but they should be clear and simple to understand so they don’t waste busy employees’ time. 

BUYERS’ CHECKLIST

- ✓ **Reputation.** Is the vendor’s email security technology well-regarded?
- ✓ **Effectiveness.** How much spam and malware does the appliance actually block?
- ✓ **Performance.** Does a system pose a bottleneck under your company’s network demands?
- ✓ **Price.** Beyond the purchase and setup cost, how much will updates and support cost?
- ✓ **Ease of use.** Are both end-user and administrator interfaces straightforward?
- ✓ **Reliability.** Does an appliance have high availability features?

KEY TERMS


- Appliance.**
A standalone device for running a particular application, such as email security.
- Hardened.**
An operating system that has been made more secure, such as what’s found on most security appliances.
- Managed.**
An appliance that “phones home” to be monitored by its vendor.

PRODUCT SPOTLIGHT

Email Security

Product

Axway MailGate 5.0



Description

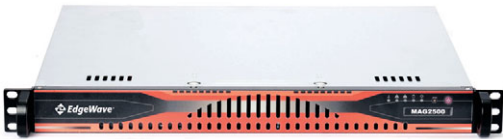
Axway MailGate 5.0 combines email network protection, policy-based content filtering, automated encryption, and more in a single integrated solution. Now including Secure Messaging functionality on a hardened Linux appliance, the latest release of Axway MailGate includes enterprise-class features such as gateway-to-gateway encryption, regulatory compliance lexicons, enhanced digital rights management, and archiving capabilities.

- Inbound threat protection: antivirus and antispam reduce network congestion
- Outbound and inbound message security and DLP (data loss prevention), including encrypted S/MIME email inspection and digital signature validation
- Support for enterprise-grade email security infrastructures and multitenancy, meaning different policies can be applied to different business units and departments with a single installation
- Disaster recovery and high availability via NAS
- Incorporates Axway Secure Messenger, a powerful, policy-based email encryption platform
- IPv6 support extended to secure messaging

Best For: Large and medium-sized enterprises.

Price: \$8,900

EdgeWave Email Security




Email Security appliances from EdgeWave are managed appliances that protect against internal and external messaging threats. The company's zero-touch solutions include hosted services and appliances that are fully managed by EdgeWave messaging security experts. EdgeWave appliances have optional Vx Technology, which provides automatic failover to the hosted services in case of overwhelming attacks or when needed for load balancing. Vx Technology ensures uninterrupted email security, should unforeseen events occur that affect email servers or power resources. This performance resiliency offers true hybrid messaging security, integrating a local network appliance with a hosted service.

- Protection against spam, viruses, botnets, spyware, phishing schemes, identity theft, and inappropriate content
- Popular among ISPs and MSPs
- Models range from 1,000- to 40,000-user systems
- Scales to meet any company's needs

Best For: Small or home offices on up to large enterprises, depending on the model.

Fortinet FortiMail Appliances



Fortinet says that its FortiMail family of appliances delivers proven, powerful messaging security for any size of organization. Purpose-built for the most demanding messaging systems, FortiMail appliances utilize Fortinet's years of experience in protecting networks against spam, malware, and other message-borne threats, the company says. The FortiMail family prevents your messaging system from becoming a threat delivery system—its inbound filtering engine blocks spam and malware before it can clog your network and affect users. Its outbound inspection technology prevents outbound spam or malware (including 3G/4G mobile traffic) from causing other antispam gateways to blacklist your users.


- Filters up to 1.3 million messages per hour
- Three modes of operation: Transparent, Gateway, and Server
- No per-user licensing
- Identity-based encryption of mail
- Wide range of performance, integrated storage, and form factor options
- FortiGuard subscription services deliver dynamic updates to antispam and antivirus functionality

Best For: Organizations that need to protect against spam, viruses, and bots; ensure secure delivery of confidential content; and meet regulatory and legal compliance requirements.

Contact: (866) 868-3678 | www.fortinet.com

Product

Proofpoint Enterprise Messaging Security Gateway P650



Description


Proofpoint's Enterprise Messaging Security Gateway appliances can be provisioned with comprehensive inbound/outbound email security as well as DLP. Some notable features include advanced connection management, zero-hour threat protection, enhanced message tracing, and TLS encryption support. The company's DLP works with both structured and unstructured data and includes an integrated policy-based email encryption module. Additionally, the P650 supports Web DLP through policy integration with ICAP-enabled proxies. Proofpoint's SaaS-enabled appliances can also be deployed in unique hybrid configurations that combine on-premises hardware with certain SaaS features.

- Defense-in-depth DLP for compliance with HIPAA, GLBA, and PCI DSS
- "Set it and forget it" administration
- Robust incident management features
- 99.8% or better effectiveness against all types of spam, phishing attacks, malware, and other forms of malicious email

Best For: Medium-sized and large enterprises.

Price: \$8,500 plus annual user license fees for installed features

Sendmail Sentrion




There are three hard appliances in Sendmail's Sentrion family, which use the powerful Sentrion Message Processing Engine for bidirectional message inspection that provides enterprises with DLP, anti-malware, and compliance services. The devices also support ICAP proxies, Splunk reporting, and protocols including HTTP Webmail. Sendmail also offers similar functionality in virtual appliances, hybrid implementations, and even blade servers.

- Supports additional applications for incident remediation, reputation servicing, policy-based encryption, and more
- Scalable; supports clustering
- Can manage automatically generated email, including invoices, CRM, and ERP messages
- Supports enforcement of complex policies

Best For: Large enterprises.

Software Security Solutions Cloud-Based Email Security Services



Software Security Solutions' Cloud-Based Email Security Services offer enterprises hosted protection against a variety of threats, including viruses and spam. The company's services run every email through five different antivirus engines, plus server and endpoint protection, for seven layers of protection. The services can also be used with optional business continuity, email archiving, and email encryption modules for more complete protection.

- Seven layers of email security with five antivirus engines, server protection, and endpoint protection
- Optional business continuity module provides secure access to email for up to 28 days in the event of email server failure
- Enterprises can securely capture, store, and index incoming and outgoing email with the option archiving module
- Optional email encryption helps meet legal, compliance, and regulatory standards

Best For: Small companies that lack the budget or resources to manage in-house email security appliances.

Contact: (303) 232-9070
www.softwaresecuritysolutions.com

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Mirapoint Message Server



Message Server from Mirapoint is a reliable, easy-to-use email server that's built on an open-standards platform and includes collaboration features and a multilayer security approach, which includes multiple antivirus and antispam engines, sender-based connection controls, and sender IP reputation validation. Message Server is available in a number of iterations, from the easy-to-use M700 to the powerful M7700, to ensure secure messaging for enterprises of all sizes.

- Integrates with Mirapoint's RazorGate and RazorSafe appliances for email security and management
- Lowers complexity, reduces the administrative load, and easily scales to meet growing needs
- Offers all-in-one messaging, collaboration, and security

Best For: Enterprises needing a secure messaging solution capable of handling millions of messages.

Mirapoint RazorGate Appliances



Mirapoint's RazorGate appliances are powerful, scalable email security gateways designed to protect enterprises of all sizes from email-borne threats such as spam and viruses. RazorGate appliances combine connection-level controls, Rapid Antispam technology, virus protection, and end-user spam controls for intuitive protection against malicious content, all in one easy-to-install and easy-to-manage hardware appliance.

- Connection-level controls through MailHurdle, which blocks up to 80% of threats at the network edge, and Sender Policy Framework, which blocks emails from forged addresses
- Reputation services flag suspicious IP addresses
- Monitoring and effectiveness reporting via a configurable dashboard
- Seamlessly routes email to Mirapoint's Message Server or any other email server and works with MessageSafe for archival
- Simplicity of design and minimal administration reduces installation time and resource demands

Best For: Enterprises that need maximum email security with low TCO and minimum resource requirements.

SonicWALL NSA E8510



The flagship of the SonicWALL NSA lineup, the NSA E8510 combines sophisticated software with a high-performance, 16-core hardware design to provide multigigabit scanning performance. The appliance features the company's Reassembly-Free Deep Packet Inspection technology, which uses a scalable application inspection engine to analyze content of any size in real time, providing protection against outside and inside threats at the application and network layers. The NSA E8510 can even decrypt and scan both inbound and outbound HTTPS traffic on the fly without impacting performance, SonicWALL says.

- 10 Gigabit Ethernet support
- 2.2Gbps of full deep packet inspection throughput
- Clean VPN feature safeguards the integrity of IPsec and SSL VPN connections

Best For: Enterprise deployments in data centers, campus networks, and distributed environments.

Price: \$39,995

SonicWALL SuperMassive E10800



The SuperMassive E10800 from SonicWALL is built to inspect hundreds of thousands of connections simultaneously across all ports. Among its standard and optional features are intuitive AppFlow Visualization tools, which let the E10800 apply app-level policies to productive or unproductive application traffic. It also features active and passive hardware failover protection with state sync. Additionally, SonicWALL's Reassembly-Free Deep Packet Inspection provides application intelligence, SSL traffic inspection, anti-malware, and more.

- 40Gbps of deep packet inspection throughput
- 96 processing cores
- Six 10Gbps SFP+ and 16 1Gbps SFP Ethernet ports

Best For: Large enterprises, government agencies, higher education facilities, and service providers.

Price: \$198,000

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Generate Your Own Data Center Power

Take Power Into Your Own Hands

Key Points

- Renewable onsite power likely won't be able to power your entire data center.
- You'll need to work with your local utility provider when configuring it to the grid.
- An integrator will need to specialize in commercial or utility level power for the amount your data center will likely need.

ALTHOUGH RENEWABLE POWER options have yet to reach a level where they can reliably power a large data center, there are many data centers that are looking to supplement power costs by implementing onsite power generation using solar, wind, or other types of inexhaustible resources. A renewable power source could also provide your enterprise with a backup power option that's longer-lasting than a UPS, battery system, or emergency backup generators. Here, we'll examine what you need to consider with onsite power generation for your data center.

Onsite Power Uses

A number of newly built data centers have been created with built-in solar installations. For example, Cisco's new data center in Allen, Texas, has a 100kW solar array on part of the data center's roof, which is designed to power the office portions of the building. And social network giant Facebook recently built a data center in Pineville, Ore., that provides electricity to the office areas supporting the data center. Intel has installed a 10kW array in its Rio Rancho, N.M., data center to test how well solar power will work with components of the data center. For example, Intel can divert solar power to the air conditioners during heavy summer heat to relieve some of the grid power necessary to cool the data center in the summer.

As you can see, solar power isn't widely used within the actual data center, but data center builders are seeing the benefits of tapping solar energy to reduce emissions, lower energy costs, and provide emergency backup capabilities. According to David Hughes, IT manager at SPI (Solar Power Inc), "Depending on the power requirements for a data center, which typically are large, a lot of solar would be required to supplement their usage. A rough example would be that 5 acres of space would be required to generate 1MW of power—using solar trackers that constantly direct the panels towards the sun."

Some data centers may not have enough free space to implement onsite power generation that will effectively reduce their energy costs. And some environments may not be ideal for certain types of onsite power generation. "For example, building a solar farm along the northern coast of California may not make sense if it's foggy 70 to 80% of the day," Hughes says. Another problem would be if tall buildings or trees surround the data center, because shade would block the sun from solar panels. Similarly, wind turbines won't be too effective in areas where wind isn't consistently strong.

Steps To Take & Equipment Needed

Hughes offers several points to consider when evaluating an investment in solar generation. "Are they doing it to replace

power consumption from the utility (a percentage or all of it)? Are they doing it for environmental reasons? Are they doing it for the marketing benefit, etc.?" With solar power, you'll then need to meet with a solar integrator that will design a system to meet your requirements. Your organization will also need to work hand-in-hand with the local utility provider, because any power system that's tied to the grid will require approval from your local utility.

For example, you'd need to discuss with the local utility about how it will handle onsite power if it's not all being used by your data center. "If 100% power replacement is required, batteries would be necessary with solar power, because the data center is using power at night," Hughes says. Any solar

Here's an example of a solar building installation. Image courtesy of SPI.

integrator you choose to work with should help you through the processes of selecting the appropriate configuration to meet your data center needs. "A data center should look for a solar provider who specializes in commercial and/or utility size solar installations," says Hughes.

Currently, solar is the most popular form of renewable onsite power generation for data centers, and there is some basic equipment you'll need to invest in. Obviously, you'll be working with the solar integrator to secure enough solar panels to cover the amount of power you want to generate in your data center, and you'll also be dealing with the cost of the panel installation. You'll also most likely be offered a contract for ongoing maintenance for the system. "Typically, the agreements may include periodic panel cleaning and regular checks of the performance of the system. In some cases, utilities may have additional charges to support the real-time units onsite, and communications, among others," says Hughes.

Other key pieces of hardware are solar trackers, (tools that will optimize power generation by orienting itself to a position where the sun best hits the panel), DC/AC inverters,



and high-voltage switchgear. "A lot of utilities are also requiring real-time units to track the generation of solar, and some are requiring control of the inverters, which ensures no power is coming onto the grid if a grid outage should occur," Hughes says.

There are a variety of pitfalls that you should also consider when implementing renewable power. First off, it's quite possible that an existing data center may not have enough space to meet the power generation you expect, as the data center wasn't likely built with onsite power generation in mind. Your company may need to wait to implement onsite power generation into a new building or data center where they can find a location that best suits the renewable power they want to utilize. From a purely financial perspective, it's possible that the cost of the equipment, installation, and maintenance of the onsite power will outweigh the energy delivered by the green power. It could be up to your organization's marketing team to turn the renewable energy into something that will more quickly bring a return on investment.

Hidden Renewable Benefits

Besides financial savings, the hybrid power approach will likely have a positive effect on the local areas around the data center, because there will be less of an electrical burden on the power grid. It may even be possible for you to sell unused power to the local power utility so that the energy can be taken up by nearby customers. "The marketing benefits of a data center 'going green' could pay dividends in the long run as more and more businesses will likely have that as a requirement for any data center they choose," Hughes says. Thus, even if your onsite power generation isn't offloading a great deal of energy, it could still prove useful from a sales standpoint. Hughes adds, "Data centers could come up with a solution to charge slightly more for power consumption if a customer wanted to ensure that the power they are using is from the solar."

Top Tips

- ✓ Figure out the key reasons for making the investment.
- ✓ Find an integrator that will be able to maximize the production of your onsite power.
- ✓ Meet with the local utility about how the power will be handled.
- ✓ Work with your marketing department to play up the value of green power.
- ✓ Consider adding ongoing maintenance for your equipment.

BUYING TIPS:

KVMs




WHEN IT COMES TO buying a KVM switch for your data center, you’ll find that there are a variety of features and key functions that you’ll need to consider. “Some features and functions will be particularly valuable based on your specific environment and situation,” advises Brett Femrite, sales manager at Rackmount Solutions (www.rackmountsolutions.net). Here is a look at what you should consider when selecting a KVM for your enterprise.

Devices and users. KVMs have a limited amount of servers and devices they can directly control. To that end, Will Beene, rack specialist and technical account manager at Rack Solutions (www.racksolutions.com), recommends that SMEs ask how many users can be supported both locally and remotely. KVMs are offered in a variety of port densities, so you should be able to find one that perfectly fits your needs.

Distance. Femrite notes that you should also determine from how far away you need to be able to control the connected devices and the distance from the KVM to the devices. If the servers are too far away for the cabling to reach, you may need to invest in a KVM extender that converts the KVM signals and allows them to travel over a greater distance. You could also invest in KVM over IP. “KVM over IP allows the servers to be further away from the KVM switch; however, Service Access Modules (SAMs) are required,” Beene says. “You have to weigh the cost vs. the benefits. In large organizations with distributed systems, KVM over IP is an easy method of administration and management.”

Connections and OS compatibility. Different servers may offer different types of connections, such as PS/2, USB, or Sun. The KVM you select will need to offer ports for all the types of servers and devices you need to connect to. You’ll also want the KVM to support the different operating systems and hardware platforms in your data center. Another connection concern is whether you’ll be using a monitor and servers with a VGA or DVI input.

Local and remote connectivity. KVM over IP also allows for IT staff to control servers from anywhere using an Internet connection. The Web connection option is convenient if the network administrator works in a location away from the servers or will need to check on something at odd hours of the night. The KVM over IP switch will also feature an encryption protocol that will help secure the data you send over the network.

Future upgrades. You should consider the cost, benefits, and expandability of the KVM switch, especially if you plan on upgrading in the near future. “Organizations that administer and manage large numbers of servers will benefit from being able to cascade KVM switches as they grow and expand,” Beene says. 

BUYERS’ CHECKLIST

- ✔ How many servers or devices do you want to control?
- ✔ What types of connections does the KVM need to offer?
- ✔ Do you need to manage the servers or applications locally and/or remotely?
- ✔ Will the KVM need to be expandable in the future?
- ✔ Is BIOS-level support available?
- ✔ Will the KVM be secure enough for your data center?
- ✔ Does the KVM support your OSes and hardware?

KEY TERMS


- Cascading.**
Connecting KVM switches together in a chain by attaching one switch to the computer port of another.
- Converter.**
An add-on device that converts the KVM signal from one platform, such as Windows, to another, such as Apple.
- Emulation.**
A switch’s ability to imitate a signal so that the PC thinks that it’s directly connected to the KVM.
- IP (Internet Protocol).**
The protocol that enables admins to route commands across networks in order to work remotely.
- KVM extender.**
Converts the KVM signal to travel over a greater distance than it would have previously, eliminating the need to control the servers from the server room.
- KVM sharing.**
The ability of a KVM switch to be accessed and controlled by more than one person.
- OSD (on-screen display).**
A display that lets admins control the switch and view information about the connected computers without needing to use a PC.
- Resolution.**
The maximum pixel height and width the KVM can display.
- Scan rate.**
The time it takes for the KVM to switch to a different port.

PRODUCT SPOTLIGHT

KVMs

Product

AdderView 4 PRO DisplayPort KVM



Description


The AdderView 4 PRO DisplayPort KVM from Adder is designed to enable four computers equipped with DisplayPort technology to be controlled from a single KVM console. The switch makes use of Adder's True Emulation Technology, which enables USB HID (Low and Full speed) devices to be continuously emulated to each computer. This unique technology enables instantaneous and reliable hotkey switching while also supporting the extra keys and features of enhanced keyboards and mice. The AdderView 4 PRO DisplayPort includes two independently switchable USB 2.0 channels (Low, Full and High speed) and an audio channel, giving the user the flexibility to attach selected peripherals to different computers.

- DisplayPort 1.1 compliant
- True Emulation USB 2.0 technology
- Independent simultaneous device selection
- Channel selection options
- Broad USB 2.0 Hi Speed device support
- Options port for control, synchronization, and upgrade

Best For: IT administrators, post production, graphic designers, detailed medical imaging, and broadcast studio professionals.

Price: \$675

AdderView RDX 5000IP



Description


The AdderView RDX 5000IP from Adder is a complete server room solution with local and remote management capabilities. The 1U keyboard tray is available in most keyboard languages and features a premium-quality Samsung SXGA 1,280 x 1,024 TFT LCD panel with touchpad control and advanced on-screen display for device selection. Control 16 computers directly from the tray together with four secure IP users. Expand to support up to 256 computers using CATx 5000 switches. Using Adder's CAM modules, you can connect the switch via CAT 5e cable to any type of server, including PC, Mac, and Sun. Country code reporting, DDC, and continuous keyboard and mouse emulation further ensure faultless operation across your unique installation.

- Multiplatform capability and connectivity
- Serial console server
- LDAP integration plus Adder.net management software
- RS-232 port
- Configure 16 separate users internally with unique access privileges
- AES 128 encryption and RSA2048 authentication

Best For: IT administrators needing to increase space and productivity while managing local and remote devices from the server room.

Price: \$3,195

Aten CS1768



Description

The CS1768 KVM switch from Aten gives users access to and control of up to eight computers from a USB keyboard, a USB mouse, and a dual-interface monitor that can toggle between DVI-I and VGA inputs. The unit can be cascaded up to three levels, which allows for control of up to 512 computers from a single console. It also features Aten's Video DynaSync that optimizes display resolutions, so users will always be viewing the screen at the server or workstation's optimal video resolutions. Audio from the computers can be output to two sets of speakers.


- Supports both digital (DVI) and analog (VGA) video; mixed operation possible
- DVI single link (1,920 x 1,200); VGA (2,048 x 1,536)
- Supports widescreen resolutions
- Port selection: OSD, hotkey, pushbutton
- Built-in two-port USB 2.0 hub
- Console audio ports on front panel for easy access
- Auto Scan Mode for monitoring all computers

Best For: Organizations that need support for high-resolution video and stereo audio from the KVM.

Price: \$599.99

Product

Minicom Smart 232 IP Switch



Description


The Smart 232 IP Switch from Minicom is a multiuser, remote access IP KVM switch for data center and server room rack environments. The Smart 232 IP allows two remote administrators and one local user to access and control up to 32 servers through a standard Web browser. The Smart 232 IP measures 1U for convenient rack mounting with the included rackmount kit.

- Three simultaneous KVM users (two remote and one local) and two additional serial session users
- Utilizes the highly secure 256-bit AES encryption protocol with multilayer user rights
- Absolute mouse support means no need to change mouse setting in Windows OS
- Innovative Minicom KVM over CAT 5 technology
- Multiplatform support for PS/2 and USB
- Extends distance between servers and switch up to 30 meters/100 feet
- Seamless power control

Best For: Companies in need of a versatile, high-performance KVM with central management capabilities.

Price: \$2,295

Rack Solutions Rackmount KVM



Description

The Rackmount KVM from Rack Solutions is a low-cost, space-saving monitor and keyboard mount that only uses 2U of rack space and works with square, round, or threaded hole racks. You can use your own monitor with this KVM, or you may select an option that comes with a 17" or 19" monitor. The mounting depth adjusts from 15.5" to 31.5" to give you flexibility when installing it in your rack.


- A fraction of the cost of typical OEM solutions
- Works with any 4 post, 19" rack (2 post options also available)
- 28" travel rack rail equipped with ball bearings for extra support and easy slide control
- Compatible with most KVM devices
- Trackpad keyboard supports PS/2 and USB connections
- Comes assembled with keyboard and monitor cables already routed; the only assembly required is the monitor
- Cable management arm included

Best For: Enterprises that need a low-cost, feature-filled KVM that conveniently slides into the rack when not in use.

Price: Starts at \$399 (without monitor)

Contact: (888) 903-7225 | www.racksolutions.com/kvms

Rackmount Solutions CyberView Matrix High-Density CAT 5 KVM (UIP-3202)



Description

The CyberView UIP-3202 from Rackmount Solutions is a 1U high-density CAT 5 KVM switch with 32 ports. It offers a maximum distance of 40 meters (130 feet) between your server and KVM switch with the rear cable management using CAT 5 cords. With the UIP-3202, you can mix PS/2, USB, and SUN with multiplatform switch capability. A second user can work securely over 128-bit encrypted IP access using the Web interface to control multiple servers down to the BIOS level.

- Use of the RJ-45 CAT 5 interface allows for a higher number of ports in smaller density
- Traditional CAT 5 cords provide simpler cable management compared to coaxial cables
- 128-bit secure browser-based user access from anywhere in the world over IP
- Advanced user profiles and configurable OSD hotkey combinations

Best For: Enterprises that need a KVM switch that offers increased density, increased distances, enhanced cable management, and multiplatform capabilities over traditional KVM switch platforms.

Price: \$1,543

Contact: (866) 207-6631 | www.rackmountsolutions.net

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Black Box ServSwitch DKM Switching System



The ServSwitch DKM KVM Switching System from Black Box comprises modular housing chassis with two, four, six, or 21 slots and transmitter and receiver interface cards. The DKM extender setup provides the widest range of possible combinations, which makes it easy to customize for specific applications. The DKM switches and modular cards work over single- or multimode fiber cables or over CATx cables. The switches also can be set up in a variety of configurations, including matrix switch, dual- or quad-head KVM switches, Share Mode, and Classroom Mode.

- Four housings are available: desktop housings for two, four, or six boards or a 19-inch, 4U rack for 21 boards
- A redundant power supply option is available for some housings
- Modular transmitter and receiver cards can be copper- or fiber-based
- Extend DVI-D video, USB HIDs, audio, RS-232, or USB 2.0

Best For: KVM extension setups that require flexibility.

Price: Housings start at \$164.95; interface cards start at \$119.95

Contact: (724) 746-5500 | www.blackbox.com

Black Box ServSwitch Secure KVM Switches with USB



Black Box ServSwitch Secure KVM Switches with USB are EAL4+ Certified and TEMPEST Level 1 Qualified, surpassing the security profiles of most other KVM switches. ServSwitch Secure switches provide control and separation of up to four PCs connected to secure and non-secure networks through just one keyboard, monitor, and mouse. Users can safely switch between as many as four computers operating at different classification levels without worry. ServSwitch Secure KVM Switches with USB prevent data from leaking between ports and to the outside world and prevent data from being stored in the device.

- Prevent electronic snooping
- Available in two- or four-port models
- Support DVI-I video
- Feature high port-to-port isolation and external tamper-evident seals
- Some models include support for card access readers

Best For: Military and governmental organizations that depend on keeping sensitive data from leaking to the outside world or between secure and non-secure systems.

Price: Starts at \$475.95

Contact: (724) 746-5500 | www.blackbox.com

IOGEAR Dual-Link DVI KVMP Switch



The IOGEAR Dual-Link DVI KVMP Switch (GCS1642) shares the highest resolution (up to 2,560 x 1,600) of wide-screen video on two dual-link DVI monitors with support for 3D graphics. The GCS1642 features two USB 2.0 peripheral ports for asynchronously sharing USB devices between computers, while a powered USB hub can be attached to the peripheral ports for added functionality. Audio and microphone support for sharing speakers and a microphone are an added convenience. Coupled with patented DynaSync technology, the GCS1642 remembers a monitor's ideal resolution and refresh rate, making it possible to boot all computers simultaneously and switch back and forth while maintaining the native video settings of each monitor.

- Can share high-speed USB 2.0 peripherals such as printers, scanners, and external hard drives between two computers
- Complete keyboard and mouse emulation for error-free booting and real-time switching
- Supports MAC keyboard and special keys
- Full support for DDC, DDC2, and DDC2B monitors
- Firmware upgradeable

Best For: Computer-aided design and manufacturing, high-end desktop publishing, graphic design, and video editing.

Price: \$279.95

Rackmount Solutions IP DB-15 KVM Switch



The IP DB-15 KVM Switch from Rackmount Solutions lets you access up to 128 servers from anywhere in the world over IP. It comes in both an eight-port (IP-802) or 16-port (IP-1602) version with three-in-one KVM cable in 6-, 10-, 15-, and 33-foot lengths. The local console supports a resolution up to 1,920 x 1,440 and has two USB Type A ports for a keyboard and mouse. The remote console has a resolution of 1,600 x 1,200 and can accommodate up to 15 user logins.

- Eight or 16 ports in 1U of rack space
- 128-bit secure browser-based user access from anywhere in the world over IP
- Cost-efficient remote server management
- Multiplatform support: PC, Sun, IBM, HP, and Dell
- Supports Windows Vista/2003/XP/2000, Linux, Netware, Unix, and DOS

Best For: SMEs in need of a cost-efficient way to manage up to 128 servers remotely.

Price: \$913 (16-port), \$724 (eight-port)

Contact: (866) 207-6631 | www.rackmountsolutions.net

Trendnet TK-804R



Trendnet's eight-port TK-804R KVM switch features an on-screen display that lets users manage multiple computers with just one keyboard, monitor, and mouse. It supports USB and PS/2 interfaces on the console side and USB interface on the PC side. Users can switch between PCs using hotkey, push-button, or on-screen display for flexible management and can hot-plug PCs quickly to avoid downtime.

- Supports high-quality video up to 2,048 x 1,536
- Advanced adjustable auto-scan modes for monitoring multiple computers
- LED display for easy status monitoring
- Password protection with auto timeout logout
- Auto-detect power module bank number when daisy-chaining
- Built-in daisy-chain port for cascading up to 16 levels (128 computers) of up to 30 meters total distance
- Beep alert for port-switching confirmation
- Standard 19-inch 1U rackmount design

Best For: SMEs that need to monitor multiple PCs quickly and efficiently.

Price: \$299.99

Trendnet TK-IP101



The TK-IP101 from Trendnet is a one-port KVM over IP switch that provides cost-effective remote server management for multiple users, regardless of server status. It eliminates the need to physically be in the server room to troubleshoot, reboot, and edit pre-boot functions. The TK-IP101 gives admins highly secure access to both Windows and Java-based clients. The TK-IP101 supports four concurrent logins with up to 16 active user accounts.

- Save time and resources by managing resources remotely
- Centralize management of multiple servers when connected to a conventional KVM switch
- Multiple user access control
- Crisp 1,600 x 1,200 resolution
- Intuitive Web user interface permits upgrades and backups
- Supports user-friendly Telnet sessions and FTP access
- Use with TRENDnet's TK-RP08 to control on/off power cycling of multiple devices remotely
- Works with LDAP, RADIUS, and Active Directory servers
- Supports Ethernet RJ-45 and PPP connection over serial RS-232 interface with data rates up to 1Mbps

Best For: IT staff that want to control BIOS-level functions, Windows-based applications, and other interfaces from a single intuitive Web user interface.

Price: \$499.99

SIX QUICK TIPS

Network Planning

Refresh Your Network With Today’s Needs & Tomorrow’s Technology In Mind

EVEN IF YOUR ENTERPRISE is operating fine with the 1GbE or 10GbE pipe now in place, that doesn’t preclude you from turning an eye toward 40GbE and 100GbE implementations. As Info-Tech research analyst Derek Silva points out, an enterprise that’s considering, say, a server room refresh in the near future is better off upgrading to 40GbE- or 100GbE-capable equipment even if not presently vs. having to “swap out a core network switch down the road.” Although doing such long-term network planning can be a pain, he says, the severity of such decisions—“essentially it affects the entire company and what it’s capable of doing”—is massive. In other words, “You really can’t mess this up,” Silva says. To that end, consider the following advice when planning your network.

✓ *Future Proof*

Mike Hronek, networking solutions architect at CDW (www.cdw.com), says that when planning future network needs, you should think five to seven years out. “Based on historic evolution of network standards, that time frame is just about how long it takes for a new standard to really take off on many networks,” he says. Although there was an eight- to nine-year gap between the maturity of 1GbE to the wide popularity of 10GbE, Hronek expects a shorter timeline for widespread adoption of 40GbE. As such, “organizations should look for models that can be upgraded, which will hopefully limit costs associated with faster speeds when the time to upgrade comes,” he says.

Silva recommends that any organization going through a refresh should future-proof itself as much as possible, including by purchasing switches capable of accommodating 40GbE and 100GbE ports. Further, buying cabling now that’s capable of 40GbE or 100GbE and “bypassing the \$10, \$25, maybe \$100 in savings you might see later” is worth the effort you’ll save, he says.

Rob Enderle, principal analyst for Enderle Group, suggests keeping consolidation in mind when future-proofing. “Higher bandwidth should drive economies of scale more strongly toward data center consolidation and centralization and away from distributed models,” he says. “Planning for this change in advance should help make it more seamless and less painful.”

✓ *Seek Advice*

The road leading up to actually buying next-generation network gear should be filled with staying current on standards, protocols, and vendors’ proprietary features. Doing so, Enderle says, can save time in narrowing down vendors and exactly what equipment is available that can meet specific needs. “Like a fine wine, you don’t implement a standard before it’s time, but you

Most Practical Tip:

✓ *Don’t Settle*

Although “anything is better than what we have right now” might make sense, “it’s simply not true,” says Info-Tech analyst Derek Silva. “Upgrading to 100GbE because we have 1GbE now will not instantly result in a better network.” A better approach is having a thorough list of requirements necessary to reach an ideal end state. “If you have network equipment that’s 10 years old, doesn’t even support 1GbE, and all the rest, you might be thinking to yourself, ‘anything will be an improvement,’” he says. “But when you get a holistic picture of what the various products are actually capable of now, paired with some sort of vision of what your network should be capable of doing for the next 10 to 15 years, putting that all together is the ideal state.”

Savvy Shopping Tip:

✓ *Rate Vendors’ Preparedness*

Vendors are very different where their network equipment’s level of readiness is concerned, says Info-Tech analyst Derek Silva. “Some are way behind the curve in terms of actually having products on the market that are ready for 40GbE and 100GbE, whereas others are ready across the board, at least at the aggregation and core layers, which is really where it’s needed right now, or will be,” he says. Noting how many of a vendor’s products are 40GbE- and 100GbE-ready “may surprise you in a negative way,” he says. Although this issue will dwindle, he says, “if you’re ready for the move now, it’s definitely a question you need to ask.”

BONUS TIPS:

✓ *Who benefits most now?*

Beyond colocation and cloud providers, highly centralized data centers, and enterprises planning to consolidate data centers or new builds, a good candidate for moving to 40GbE is a data center with a high concentration of virtual servers. “Virtualization leads to high volumes of traffic between servers and having the infrastructure in place to support that will be beneficial,” says Mike Hronek, networking solutions architect at CDW (www.cdw.com).

✓ *Take your time.*

Spending the time necessary to implement a network refresh correctly can result in time and money savings later. “Much of the cost connected to any technology change is the result of mistakes that result in the firm buying what they don’t yet and may never need and in undoing bad decisions,” says Rob Enderle, principal analyst of Enderle Group.

don’t want to be excessively late, either,” Enderle says. “Otherwise, you’ll likely pay a premium for aging technology. Stay informed.”

Resources to track include various analysts well-versed in the market, who may offer vendor comparison and weighting tools. Companies with a clear “end state” in mind can particularly benefit here, Silva says. “If you do know [your end state], you don’t have to invest as much time to talk to vendors about what they can do for you.” Silva also suggests reaching out to channel partners that may possess information not generally available. Ultimately, Silva says, narrowing a list of potential vendors to three instead of six or more “will save you days if not weeks.”

Additionally, network administrators and/or infrastructure managers must have a vision for the next 10 years for what they want the network to be able to support, Silva says. “That will involve talking with other folks in IT and even some C-level execs to see where they’re going so you don’t potentially bungle this multimillion-dollar decision,” he says.

✓ *Bargain For Better Prices*

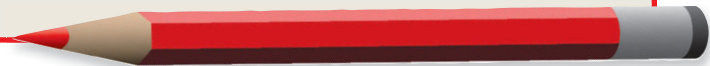
Given how things have been going over the past few years, Silva says, vendors are willing to “get very aggressive on pricing if you push them.” If a vendor knows competitors are in the picture, he says, “you’ll get discounts regardless.” Pin your list down to two vendors that you’ll be happy with regardless and “you can play them off each other for a little while and achieve some very deep discounts on the hardware,” he says. “You just have to know what you’re doing.”

Where the ideal time to buy is concerned, Enderle says it’s helpful to have someone you trust who is active in the standards efforts in on the decision “so they can tell you of the pitfalls and help you with timing,” he says. “This ensures you neither buy early nor late.”

✓ *Buy Better Fiber*

According to Hronek, “Organizations should have already run or be prepared to run fiber where they will want the faster speeds. For the next-generation standards, this is normally not going to be the same fiber people used for 1Gbps. The fiber will need to be of better quality and likely have different specifications.”

Overall, Hronek advises “if an organization is looking to add or replace fiber, they will want to use OM4 fiber,” which he says will enable running 40Gbps and 100Gbps at longer distances than most of the fiber on the market today. This is similar, he says, to what we saw with 10Gbps. “Many networks today have a lot of OM1 or OM2 fiber, but OM3 is really the best for 10Gbps,” he says. “So, if an organization wants to run new fiber, for whatever reason, they should look at OM4 to make the future easier.” ■





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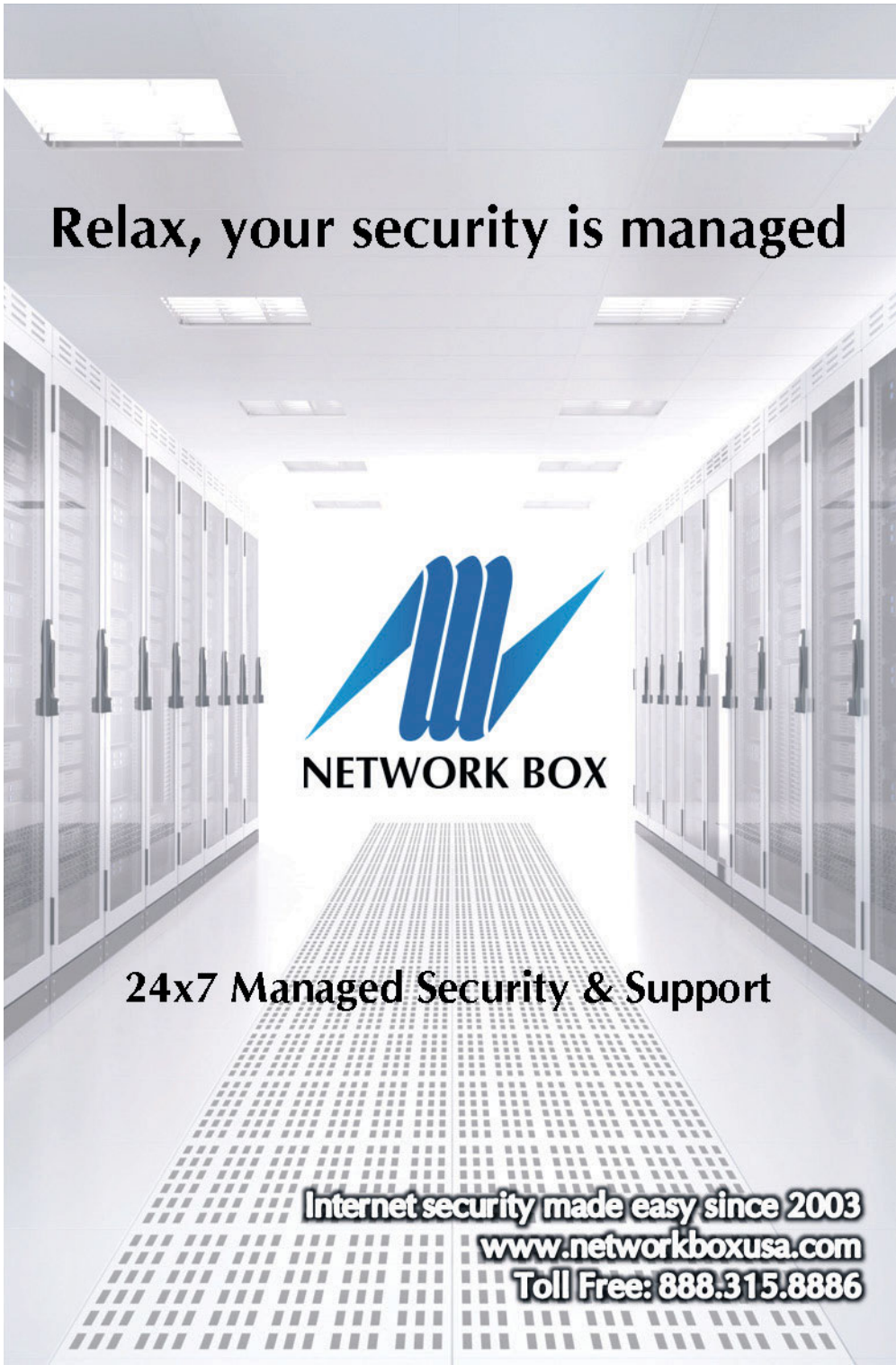
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Network-Attached Storage & The SME

SMEs Need Enterprise-Class NAS Capabilities On A Small-Business Budget

AS A SMALL BUSINESS GROWS and its data center reaches the ranks of a small to mid-sized enterprise, its needs for file sharing begin to change. The SME is faced with the challenge of managing multiple small NAS (network-attached storage) systems really designed for the small-business market or having to swallow the cost and potential complexity of a NAS system designed for the larger enterprise. Now, though, several companies are targeting solutions directly at the SME market, and the key to selecting the right solution is knowing what to look for.

SME Solutions vs. Small-Business Solutions

The first step is to make sure you are ready for a more data center-class NAS solution. It really comes down to how dependent will you become on the device or how impacted your business will be if it is down or too slow to keep up with the pace of business. For example, according to Kevin Epstein, vice president of marketing for Drobo

(www.drobo.com), “With a SOHO user or a five- to 10-person SMB, you might get away with not having multiple Ethernet connections for redundancy or having a PC-only or Mac-only solution with minimal management capabilities. You might even forgo data protection and run without RAID.” For the SME, however, the dependence on the device becomes more critical. “As an SME, your file sharing device is business-critical,” Epstein says. “If the NAS is down, you are at least slowed down and your business may be stopped. The SME NAS needs to have alerting capabilities, redundant connectivity, [and] dual-disk-failure protection. As the SME becomes even more dependent on the NAS, it should have built-in offsite backup, so it can replicate its data elsewhere in an automated way.” Because SMEs often have limited staff, these capabilities need to work without extensive manual intervention or day-to-day administration. In most cases, SME IT personnel are

already wearing multiple hats and managing multiple systems, so they don’t have the time to become a storage manager.

Another key capability is integration with other technologies in the SME data center. “A good example of this is complete integration with Active Directory (AD),” says Andres Rodriguez, CEO of Nasuni (www.nasuni.com). Unlike smaller businesses, Rodriguez says, “the SME has invested in directory services like AD and wants to leverage that investment instead of having to re-key usernames and passwords.”

The major challenge with SME NAS is that SMEs have a need for enterprise feature sets and in some cases near-enterprise performance, but they do not have enterprise budgets. “SMEs don’t have the luxury of buying storage systems for specific tasks; doing so would waste money and bury the IT staff in administration efforts,” says Kelly Murphy, CEO of Gridstore (www.gridstore.com). “They need a system that can meet the demand of varied workloads from relatively large amounts of data-centric users.”

Rani Osnat, vice president of marketing for CTERA Networks (www.ctera.com), adds that SMEs also need to accommodate for rapid growth. “The SME tends to scale their capacity requirements at a disproportionate rate compared to other segments of the NAS market,” Osnat says. “This means they need the ability to easily add local capacity and should potentially be looking to offload that capacity as the data ages.”

Key SME NAS Features

An SME’s key goals are security, accessibility, and simplicity when it comes to NAS solutions. As the SME grows, so does the NAS that supports the organization, and managing that growth and making sure the data is always available to the organization is critical for success. SMEs will need different features to help reach those goals.

For example, Osnat suggests looking for NAS solutions with cloud connectivity. “The cloud can provide extra offsite data protection,” Osnat says. “With that comes the need

Key Points

- SMEs' NAS needs are approaching those of larger enterprises, but SMEs often lack the budget dollars to match.
- The key is to look for solutions that can accommodate an increasing dependence on shared data access while not requiring system management time that the SME does not have.
- Scale-out storage capacity is a key factor for SME NAS solutions because it enables SMEs to adjust their storage to match their needs.

for security and encryption so that data moving to and being stored in the cloud can be securely held.”

Rodriguez adds, “The cloud helps the SME simplify the ripple effect of tasks that come from implementing an SME NAS because it combines the processes of capacity management, backup, replication, security, and immutability into a single service.”

Epstein advises that SMEs look for a local NAS device that does more than just RAID. “RAID by itself is complex and does not provide the level of protection that most SMEs are going to require,” he says. “Instead, look for systems that can leverage the available capacity to provide maximum protection.”

Simple expansion of the system is another key feature to look for. Epstein advises that SMEs look for a NAS that can accept drives from any manufacturer to avoid getting locked in and to be able to scale capacity in the most cost-efficient manner.

Murphy sees scale-out storage as the solution for maintaining simplicity while being able to meet the organization’s need for additional capacity. “It is important to have a very cost-effective entry point with a reasonable amount of capacity (10 to 20TB) and then incrementally grow that to whatever size is required,” Murphy says. “The value of a scale-out NAS solution is that as capacity is added, so is extra tolerance and performance.”

NAS-Worthy SME Applications

Most SMEs want to use their NAS for what NAS was originally intended for—file sharing—unlike enterprise NAS that wants to essentially become the complete storage system. Using NAS as a backup disk for laptops and desktops remains a close second.

Rodriguez also says that a high number of SME NAS users are not really users at all but machines. “Machine-generated data from devices that capture information like medical devices are a top consumer of NAS capacity.”

What’s The Best Expansion Option?

Most experts list managing growth as a key capability for SME NAS solutions. There are three options discussed for expansion: the cloud, in-place drive upgrades, or scale-out storage. Each has advantages and disadvantages.

Cloud-enabled NAS: A NAS that leverages cloud storage can offload older data and backup data to a remote storage facility so that you don’t have to continually expand local storage. This method also provides a built-in offsite backup in most cases. The downside is that storage becomes an ongoing hard cost, and there is a monthly or quarterly fee which has to be paid for the data stored in the cloud.

In-place upgrades: An in-place upgrade approach means replacing an older, smaller-capacity drive with a higher-capacity drive, leveraging the unit’s rebuild capability to re-create the data that was on the old drive and provide the capacity increase of the new drive. Performance can also improve if faster drives are installed and the system knows how to leverage faster drives for busier data. This is a fairly cost-effective method, but if the needs of the environment outgrow the I/O capacity of the unit, then a new unit needs to be purchased, potentially increasing management overhead.

Scale-out storage: A scale-out NAS solution adds capacity by adding nodes (small servers) to the existing system. They are managed as one entity, and each entity comes with additional processing and network performance along with the capacity. The downsides are that the initial implementation may be expensive and it consumes more network ports.

Study Examines Stumbling Blocks To Digital Transformation

Research from CapGemini Consulting and the MIT Center for Digital Business shows that enterprises are still struggling with what researchers call “digital transformation,” or the use of technology to radically improve an enterprise’s performance or reach. The researchers looked at so-called culture-shocking technologies such as social, analytics, mobile, and embedded devices and presented their findings in a report titled “Digital Transformation: A Roadmap for

Billion-Dollar Organizations.” They found that executives rated their innovation culture at 4.2 on a seven-point scale, and none believed their innovation cultures were as strong as they could be. The research shows that enterprises’ struggles came more from the personnel side of things than technology problems; in fact, 77% of respondents cited missing skills as roadblocks, 55% pointed to culture issues, and 50% blamed ineffective IT.



IDC Predicts Disappointing Showing For Windows 8 On PCs

Research firm IDC does not have high hopes for Windows 8, the latest OS currently in development from Microsoft, in the traditional PC market. Researcher Al Gillen says the platform will be “largely irrelevant” to traditional PC users and predicts that few will upgrade from Windows 7 to Win8. The new OS aims to serve as a platform for both traditional PCs

and tablet devices, but Gillen says it will offer few benefits for PC users that they don’t already have with Win7, aside from access to an app store. He also predicts that there will be application compatibility issues because of the new OS’ tile-like interface, which makes sense on a tablet but may prove problematic for PCs.

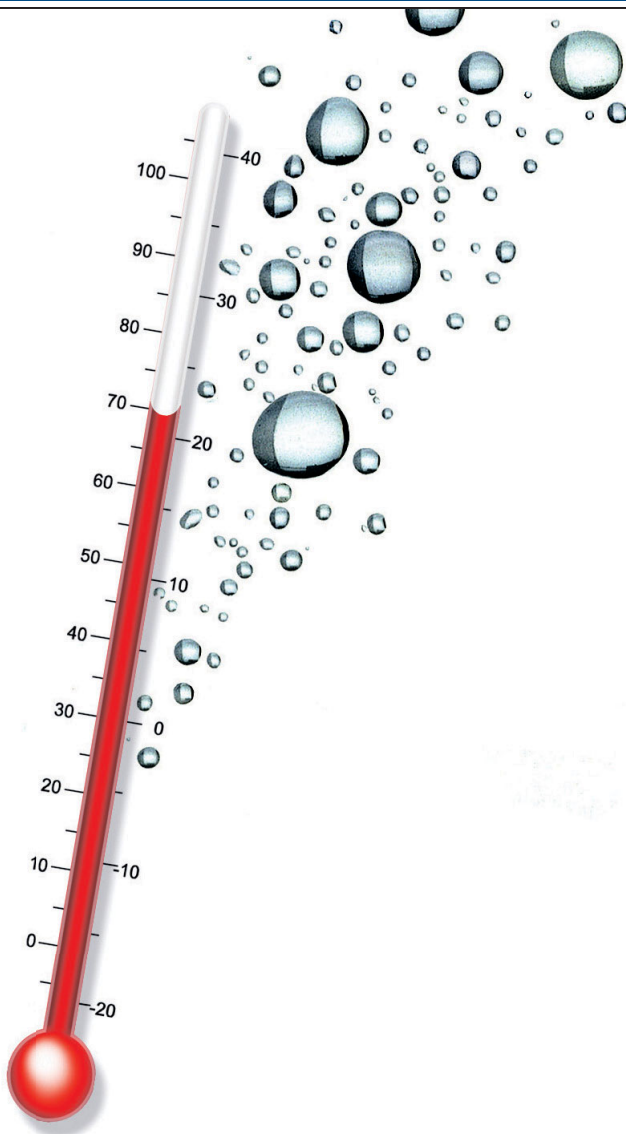
Java Is Top-Ranked Programming Language; C# On The Move

According to the latest Tiobe Programming Community Index, which ranks programming language popularity,

Java is the favored language, used by 17.56% of developers, followed closely by C, with 17.06%. In third place was C++, used by 8.25%, followed by C#, with 8.21%. Tiobe expects C# to pass C++ in coming months due to Microsoft’s frequent changes, additions, and enhancements to the language; however, C++ will likely remain a major player because it offers better performance and is a stronger choice for mobile applications, Tiobe says. The index is based on the number of courses, third-party vendors, and skilled engineers associated with a programming language.

BUYING TIPS:

Environmental Monitoring Equipment



ENVIRONMENTAL MONITORING offerings are not things an enterprise invests in on a whim. Every organization has unique infrastructure limitations, climate issues, and monitoring needs, so no one-size-fits-all solution exists. Furthermore, decision makers need to be well versed in the latest environmental monitoring tech available, and in areas such as sensor applications, notification capabilities, and management automation, to make appropriate choices.

Gina Dickson, product manager for Black Box Network Services (www.blackbox.com), ranks ease of configuration and management, variety of notification options, scalability, reporting and data collection, and variety of sensors as top concerns.

Wi-Fi, cellular, Power over Ethernet, and more. Until recently, any active monitoring product needed to be wired to be networked, and it also often needed to be powered independently. But Wi-Fi and cellular technologies have taken up the slack, enabling customers to implement a monitoring system in even remote and infrastructure-constrained locations. Power over Ethernet and USB-based sensors and equipment also negate the thermal impact of the extra hardware and effectively leave the power envelope intact. Many products also offer internal battery backup features to maintain alerts.

Monitor a variety of conditions. For critical systems that handle the most important data, it is vital to monitor a variety of conditions, even those unlikely to affect performance, to ensure against loss and downtime. Key environmental sensor types that can deliver proactive feedback include temperature, humidity, airflow, water leakage, and dry contacts. Power and voltage sensors are also important, even if the power sources have a reliable track record. Security-based sensors can also be incorporated into an environmental monitoring system.

Notification options. A state-of-the-art environmental monitoring system is nothing without notifications, and having options is important. Common notification options include email, LEDs, audible alarms, beacons, sirens, Web alerts, SNMP, automated phone calls, and SMS.

Bob Douglass, vice president of sales and marketing at Sensaphone (www.sensaphone.com), says, “The primary motivation for

adding an environmental monitoring system is to know when you have a problem as soon as possible. Text messages and email alerts are great if it’s during the day, but they won’t get you out of bed at night.” Douglass recommends picking a system that can call and talk to you. “It also helps if the telephone feature is integrated so the voice message can accurately describe which sensor tripped and tell you the current conditions.”

Ease of installation. According to Upsite Technologies, ease of installation is imperative. Most environmental monitoring

products don’t require specialized expertise to install, enabling IT staff to do the work without additional training.

Ensure ample coverage. Consider the room size and amount of equipment to be monitored and plan the number and placement of sensors accordingly. “If your deployment is small, a few points of measurement may suffice, but if you have a large operation, you may require environmental measurements every few feet,” says Brandon Siri, senior marketing representative at Server Technology (www.servertech.com).

BUYERS’ CHECKLIST

- ✓ Do you need to monitor remote or local systems?
- ✓ Do you have wired networking or power limitations?
- ✓ What kinds of notifications do you need?
- ✓ Do you have other monitoring needs beyond environmental?
- ✓ How many and what types of sensors do you need?

KEY TERMS

Dry contact.

Refers to an electrical contact that does not make or break a circuit.

PoE (Power over Ethernet).

A technology that enables devices to receive their operating voltage from the same Ethernet cable that passes along data.

SEMS (Server Environmental Monitoring Systems).

Refers to products designed to record and report the environmental conditions of servers and clients.

SNMP (Simple Network Management Protocol).


A network protocol that lets users monitor network availability and performance.

PRODUCT SPOTLIGHT

Environmental Monitoring

Product

AVTECH Room Alert 11ER



Description

The Room Alert 11ER from AVTECH is an environmental monitoring device designed to help SMEs keep tabs on temperature, humidity, and other environmental conditions in computer rooms and data centers. The device keeps track of conditions via internal and external sensors and sends alerts to admins when predetermined thresholds are met or exceeded. The Room Alert 11ER's sensors can gather environmental information from multiple locations within an 1,800-foot radius and can be controlled and adjusted via an easy-to-use browser-based interface.

- Plug-and-play setup for immediate use, with or without a host PC
- Alerts can be sent by email, email-to-SMS, SMTP, Web page update, and more
- Real-time sensor status, data logging, and graphing
- Uses just 1U of rack space in a 19-inch form factor
- Includes one built-in digital temperature sensor, two digital sensor ports, and eight channels for switch sensors or dry contacts


Best For: Enterprises that need to protect mission-critical servers from changes in temperature and humidity.

Price: Starts at \$515

Contact: (888) 220-6700 | www.AVTECH.com

Product

AVTECH Room Alert 32E & 32W



Description

AVTECH's Room Alert 32E and 32W are advanced hardware appliances designed for IT and facilities environment monitoring, alerting, automatic corrective action, and wireless sensor monitoring. They can monitor computer room temperature, humidity, power, room entry, and more in multiple locations, and they run using Power over Ethernet. Both models come with a full license of the AVTECH Device ManageR software, which automatically discovers devices, and a year-long subscription to AVTECH's Maintenance, Support & Update Service, with firmware and software updates, technical support, and full hardware replacement on the ID box free of charge.

- The 32W can accommodate about 100 sensors
- Password-protected built-in Web server
- Relay outputs let you remotely turn devices on or off, and 0-5V analog sensor inputs let you log information from other manufacturers' sensors
- Monitor units with built-in Web server, bundled Device ManageR, or any SNMP application


Best For: Enterprise-level monitoring in any location where running cables may be difficult or impossible.

Price: \$995 (32E) and \$1,195 (32W)

Contact: (888) 220-6700 | www.AVTECH.com

Product

Black Box AlertWerks ServSensor Junior (EME102A)



Description

The AlertWerks ServSensor Junior from Black Box is designed to provide detailed insights into the environmental conditions of smaller installations. This unit can be used as the central hub of the AlertWerks environmental monitoring system to track temperature, humidity, liquids, and open doors. Other applications include remote monitoring and management of HVAC systems, security equipment, UPSes, generators, and industrial equipment.

- Two ports accept a range of sensors, including temperature, humidity, water, and airflow
- Java-based Web user interface provides hub access over any IP network
- Sends alerts through SNMP or email


Best For: Organizations with limited environmental monitoring requirements.

Price: \$250

Contact: (888) 433-5049
www.blackbox.com/go/alertwerks

Product

Rackmount Solutions' Remote Physical Monitor



Description

The Uptime Devices Remote Physical Monitor unit from Rackmount Solutions supports remote monitoring that lets users protect equipment and sensitive electronics. The RPM uses Remote Intelligent Multi Sensors technology, which lets it collect environmental and security data to send alerts via email, SMS, or SNMP when the monitored equipment exceeds the user-defined limits. Each unit has a battery-backed clock for accurate recording, and the device also supports up to 250 different RIMS, located up to 1,000 feet away.

- Real-time monitoring of temperature, humidity, airflow, and dry contacts
- Dry-contact sensors for use with 10-port dry contacts and HEAT RIMS
- Monitor and control third-party power strips
- Two-port power RIMS monitor, track, and manage IT equipment current load and voltage


Best For: Data centers and standalone applications that require temperature, humidity, and remote power management.

Price: Starts at \$799

Contact: (866) 207-6631 | www.rackmountsolutions.net

Product

RF Code Wire-Free Environmental & Power Monitoring



Description

RF Code's affordable wire-free environmental and power monitoring solution helps data centers maintain optimal environmental conditions and efficient rack-level power use while eliminating the deployment and maintenance costs associated with wired solutions. Our solution consists of easily deployed, wire-free active hardware (tags and sensors and readers); software that manages the environmental and power usage monitoring information; open APIs that make it easy to integrate our solution into existing technology platforms; adherence to industry standards including BACnet, OPC, Modbus, BIRT, JMX, Tivoli Monitoring, and more.


- Easy "peel and stick" deployment: No wires or cabling
- Plug-and-play PDU power usage monitoring: No Ethernet connection
- Flexible configuration: Affordable, complete coverage
- Real-time alerting and monitoring
- Wide range of sensors: Complete protection for temperature, humidity, fluid detection, air pressure, rack level power usage, and more

Best For: Companies in need of environmental and power monitoring capabilities without the deployment and maintenance costs associated with wired solutions.

Contact: (877) 463-0756 | www.rfcode.com

Product

Sensaphone Web600



Description

The Sensaphone Web600 provides Web-based monitoring at an affordable price. The Web600 lets you track critical temperatures and other conditions in computer rooms, data centers, and other areas, and it immediately alerts you via email, text, or SNMP traps when values are out of the normal range. The Web600 can read values from humidity, air quality, water leak detection, and other sensors.

- Completely standalone and easy to use
- Can connect up to six sensors to monitor a variety of equipment and conditions
- Built-in Web server provides quick and easy information about monitored conditions
- Optional battery backup

Best For: Organizations in need of a flexible standalone unit for monitoring temperature and other conditions.

Contact: (877) 373-2700 | www.sensaphone.com

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Burk Technology Climate Guard



Environmental problems in the server room can cause costly downtime, damage expensive equipment, and even lead to loss of mission-critical data. Climate Guard monitors temperature, humidity, flood/leak, and many other conditions that can cause serious IT disasters. Email, SMS and SNMP notifications ensure that responsible personnel can respond quickly and effectively.

- Modular design lets you add capacity and features
- Built-in temperature, light, and sound sensors
- Spot trends and prevent problems from developing with onboard charting

Best For: Server rooms and data centers of all sizes that require comprehensive monitoring of environmental conditions to detect a problem as early as possible.

Price: Starts at \$495

Contact: (978) 486-0086 | www.burk.com

ITWatchDogs RelayGoose II Environmental Monitor



The RelayGoose II Environmental Monitor from ITWatchDogs provides Web-based remote surveillance, data logging, and graphing of data center climate and power conditions. Equipped with an onboard temperature sensor, the RelayGoose II has capacity for up to 22 external sensors and provides three NO/NC relay outputs, useful for triggering external devices such as an auto-dialer or backup air conditioner on alarm or manually through the Web interface. It lets users keep an eye on the facility from a secure Web interface and receive SNMP (v1, v2c, v3), email, text message, and voice call alert notifications when user-adjustable thresholds are exceeded (auto-dialer required for voice call notification).

- A variety of environmental sensors can be connected, including temperature, humidity, airflow, water and smoke detection, power failure, and more
- Has an LCD display and built-in audible alarm buzzer
- Logs and graphs all measurements, allowing for trending and capacity management

Best For: Enterprises in need of an environmental monitor with relay output control.

Price: \$649

Contact: (512) 257-1462 | www.itwatchdogs.com

Packet Power Environmental Monitor



The Environmental Monitor, or EM, from Packet Power is a small but powerful tool for data center administrators who need to efficiently monitor temperature and humidity. Each Environmental Monitor can track data and display facility heat maps from six points within a single cabinet, three points apiece for two adjacent cabinets, and a single point per cabinet in six adjacent cabinets. The EM is able to capture seven temperature readings and one relative humidity reading per unit, and it harnesses the Packet Power Data Grid wireless network for seamless deployment—all a company needs is one Ethernet port and one IP address.

- Simple and inexpensive
- Provides support for alerts as well as online access to real-time data and full historical reporting
- Can run off of battery or AC power
- Works with Packet Power wireless power monitoring solutions or as a standalone system

Best For: Admins who want a real-time view of the conditions in server racks and cabinets.

Price: From \$190 (one rack, front and back) to \$250 (six racks, front only)

Contact: (877) 560-8770 | www.packetpower.com

Server Technology Environmental Monitoring Control Unit-1-1B



Server Technology's EMCU (Environmental Monitoring Control Unit)-1-1B is an IP-based product that monitors temperature and humidity, features water and fluid sensors, supports four dry contact door sensors, and accommodates additional power-fed analog input sensors. A Web interface provides at-a-glance reports of temperature, humidity, water detection, and cabinet door status.

- Support for HTML and command-line interfaces
- Supports two temperature and two humidity measurements out of the box
- No additional software necessary
- Mounting tabs included for 0U mounting

Best For: Data centers, colocation sites, Web hosting facilities, telecom switching sites, POP sites, server closets, and any unmanned area that needs to be monitored.

Contact: (800) 835-1515 | www.servertech.com

Temperature@lert Cellular Edition TM-CELL400



Setting up the fourth-generation Temperature@lert Cellular Edition CELL400 is as easy as plugging it into an AC outlet. The device monitors up to four temperature, humidity, and/or flood sensors and sends email, text message, or phone call alerts when the readings exceed user-set limits. Built-in battery backup enables the device to operate for up to four weeks without power. The HealthCheck feature lets you know when the device has been out of communication or when it stops functioning, and PowerSense lets you know when there has been a power outage.

- No network required—uses local cellular providers
- Features multiple alarm limits, with alerts via email, text message, and/or phone call
- Reports temperature and/or humidity readings every 5, 15, 60, 120, or 240 minutes
- Temperature@lert USB and WiFi editions are also available

Best For: Geographically distributed, remote, or mobile facilities and for situations where monitoring is needed even when power outages occur.

Price: \$399.99 plus monthly monitoring plan (starting at \$15 per month)

Contact: (866) 524-3540 | www.temperaturealert.com

Upsite Technologies® Upsite Temperature Strip



The Upsite Temperature Strip, from the LOK Family of Solutions™, features an acrylic self-adhesive backing that lets users install it on any IT equipment or cabinet door where the potential for hot spots and other heat-related issues exists. It accurately provides a visual reading of intake air temperatures based on standards established by the Uptime Institute, ASHRAE, and equipment manufacturers for acceptable operating ranges.

- Colored range indicators display reliable temperatures within two minutes
- Calibrated in accordance with ASTM standards
- Measurements accurate to within +/- 10 degrees Celsius
- Monitor the intake air temperature of any piece of IT equipment for a low cost per strip
- Displays same-sized Fahrenheit and Celsius temperature scales

Best For: Monitoring temperatures and hot spots on any IT equipment and in data centers. Now available on HotLok® blanking panels.

Contact: (888) 982-7800 | www.upsite.com

SIX QUICK TIPS

Boost Your Security Arsenal

Implement Tools & Policies To Stay Ahead Of The Curve & Mitigate Risks

THESE DAYS, it doesn't matter if you're an SME, a corporate banking institution, or a global Fortune 500 company—if you're doing business, you're a potential security target. As Dan Olds, founder of Gabriel Consulting Group, puts it, SMEs "typically think that they're not targets for hackers and thus a little safer than larger firms in sexier businesses, like banks," but that's not the case. Hackers today are using automated tools to scan the Web seeking unpatched systems and "anything that's ripe for exploitation," he says, using the exploit themselves or selling the info to others to steal your data, conduct a little cyber vandalism, or even change passwords related to your data center to "try to get the company to pay a ransom to get access to their systems again." Undoubtedly, your SME has various security measures in place. Chances are, however, that security arsenal could use boosting.

✓ *Build A Better Foundation*

An initial step in bolstering your security is making certain the basics are in place. This includes establishing a firm security policy that dictates how the company will handle security issues, as well as a policy that addresses identity and user authentication guidelines and what exactly is permissible where usage of applications, mobiles devices, and other hardware is concerned. According to Von Williams, director of information security, audit, and compliance at Logicalis (www.us.logicalis.com), as the workforce becomes more mobile but employees still require access to critical information systems, two-factor authentication for remote workers is of the utmost importance.

Strong firewall, antivirus, and next-gen malware-fighting solutions are other obvious basics to address. Williams says an SME's security budget is best spent on an industry-standard antivirus program. "A company not using an antivirus program is asking for trouble," he says. "It's not a case of if a company will experience an outbreak, but when that will happen." Olds is a proponent of SMEs using gateway appliances that combine firewall, spam filtering, anti-phishing, and other security tools into one easy-to-manage device. "Often, these devices are less expensive to acquire and require less management effort than using separate hardware and software packages to handle individual functions," he says.

✓ *Stay Up-To-Date*

Making certain basic security tools are in place is half the battle. The other half is ensuring that antivirus systems, hardware, and anything else tied to security are continually patched and updated, including "servers that could otherwise be exposed to vulnerabilities that could be exploited, leading to a security breach," Williams says. SMEs can save some money here, he says, by looking to open-source solutions aimed at helping keep a company's environment secure.

Olds says IT should take a "maniacal" approach toward patching software and firmware. "Unpatched and unmaintained systems are the biggest cause of security vulnerabilities," he says. "The biggest trouble areas are systems on the network

that haven't been maintained and patched to the appropriate levels. There are a wide range of devices that tend to fly under the radar, including servers, desktops/laptops, and networking components. If something is on the network and can see the outside world, it can end up being a vulnerable point that can be exploited."

One possibility for SMEs, Olds says, is using a network discovery tool that tracks down everything on the network and creates an inventory of items that need to be checked and that need the latest patches. "This is a good project for a new hire or intern—provided they're supervised," he says.

✓ *Regulate Access To Data*

SMEs can go a long way toward bolstering security by simply asking who has access to sensitive data. As Williams says, "Do the people who have access to sensitive data have a level of access appropriate for them to do their jobs?" To help answer the question, companies should establish role-based access controls to permit only certain users access to sensitive data, he says.


According to Jeff Falcon, senior security solutions architect at CDW (www.cdw.com), "One of the fundamental principles of security that is often overlooked or not considered important is the principle of least privilege—granting any user access to only the data and resources essential to their own work." Often, he says, companies are unable to answer such seemingly basic questions as "Who has access to my data? Who should have access to my data? Do you know what devices are on my network? Do you know the identities and where users can go once they're on my network?" To begin shoring up access to data, Falcon advises to "discover and classify where high-value data exists in your organization, determine who has and should have access to it, and apply the proper security controls to safeguard that data."

✓ *Look Outside Yourself*

For some SMEs, the best way to determine where a security arsenal needs the most attention and where the company can possibly save money doing so is to obtain an outside perspective, Falcon says. Commissioning a technical vulnerability assessment, for example, can "provide you with information about your network that you did not previously know about," he says. "This will lead you on the right path to effective spending for security investments, as well as show any 'quick wins' that will help you tackle the often daunting task of figuring out where to start." Further, getting the right advice from a trusted security advisor can help prioritize where speeding should be allocated first to mitigate risk.

Key to deciding whether an advisor is warranted is the enterprise first deciding if current IT staff can manage all projects, regulatory pressures, rapid fire drill responses, and other activities that deflect from daily activities without putting the company at risk. If not, Falcon says, "determine what can be leveraged as a service and what should be maintained in-house." Logicalis' Williams adds that one

possibility is outsourcing firewall monitoring to a qualified security monitoring company that can "proactively monitor

your perimeter for suspicious activity and make adjustments to the firewall if any are discovered." 

Best Personnel Tip:

✓ *Run A Background Check Before You Hire*

"Perform background checks on all prospective employees," advises Von Williams, director of information security, audit, and compliance at Logicalis (www.us.logicalis.com). "People with questionable background checks may represent a security risk," he says. "If a potential employee has been convicted of embezzlement, for example, then you probably wouldn't want that person working in accounts payable."

Best Monitoring Tip:

✓ *Set Permissions & Rights*

According to Jeff Falcon, senior security solutions architect at CDW (www.cdw.com), one major enterprise-security trouble spot is the proliferation of endpoints and mobile devices that are poorly managed, patched, and secured. Additionally, "overexposed or excessive permissions and rights management within critical infrastructure applications like Active Directory, SharePoint, and Exchange can cause problems for enterprise security," he says. To mitigate associated risks, use solutions that track the number of devices and endpoints by type, identity, and applications allowed in the corporate environment, he says. Further, use identity management and permissions management solutions to ensure that acceptable use of devices, applications, and permissions are monitored and enforced.

BONUS TIPS:

✓ *Go automatic.*

Implementing strong antivirus protection is "absolutely critical" to protecting servers and endpoints against malicious code and viruses, say Von Williams, director of information security, audit, and compliance at Logicalis (www.us.logicalis.com). To that end, install antivirus software that automatically downloads and deploys signature files all the way to the endpoints, he says. Additionally, he suggests installing an application that checks and downloads available security patches and installs applicable patches on servers.

✓ *Get physical.*

Shoring up physical security is something SMEs can't overlook. Here, Williams says to determine who has physical access to areas where critical business data resides and decide if they are and should be authorized. To limit access to sensitive enterprise areas, he says, install card-swipe devices.



CLOUD TIPS & TRICKS

Applications & The Cloud

Improve Performance & Avoid Possible Problems



THE MAIN MOTIVATION BEHIND why many companies opt to invest in cloud environments is because they want to maximize space and save money. One way to do this is to move certain applications to the cloud, so they in turn use fewer physical resources. Consider the following tips when deciding which apps to move and how to improve the overall performance of your applications.

Determine The Best-Suited Applications

Getting the best possible application performance can come down to something as simple as picking the right apps to use in the cloud. Eric Brooks, solution architect at Logicalis (www.us.logicalis.com), recommends moving Web services and email servers to the cloud because they are “most correctly architected for hosting in a cloud data center.” But Brooks says there are other applications to consider, as well.

“Applications that are architected with multi-user or multi-environment type of implementations work best in the cloud,” Brooks says, adding that many other applications that may not be a first thought can be “implemented in such a way that they are able to be consumed out of a cloud-based infrastructure.” The key is deciding from the beginning which apps will work best in the cloud and starting with those first before moving to large-scale migration.

Size Up Your Cloud Computing Needs

Whether you are planning to move many or just a few applications to a cloud environment, you need to match up the overall needs of your applications with the perfectly sized cloud. “Often, in an effort to reduce costs, customers will opt for under-sized environments to host cloud applications,” Brooks says. “The proper information gathering for appropriate sizing of cloud environments is absolutely critical to overall application performance.” If your company

invests in an over-sized or under-sized cloud environment, you could end up over-paying for unused resources or receiving less-than-optimal performance.

Consider WAN Acceleration Solutions

Some applications are specifically designed to work with LAN environments and so it can be difficult to transfer them to the cloud, which relies on a WAN infrastructure. Eric Siegel, research director at Gartner, says that WAN networks can suffer from latency

issues, which can then be compounded by bandwidth. There is a solution to the WAN challenge, however.

“Companies can use WAN performance optimization controllers (WOCs) in software form, which can be installed into clouds without the need to make special arrangements for hardware appliance installation,” Siegel says. “WOCs compress and deduplicate traffic, thereby decreasing bandwidth costs while improving performance.”

Constantly Monitor Application & Cloud Performance

In order to know whether your applications and the cloud itself are running at their best, it’s important to monitor them and look for weaknesses that may be affecting performance. For this, companies should consider using software performance monitoring probes that work alongside applications to measure network performance, according to Siegel. He says these monitoring solutions will “help the enterprise’s service desk detect and triage any problems quickly.”

Best Tip: Thoroughly Compare Cloud Vendors

Eric Brooks, solution architect at Logicalis (www.us.logicalis.com), says it’s important to research and compare multiple cloud vendors before investing in one. Each cloud provider offers different environments that may or may not work well with certain applications.

“IT managers should develop specific requirements and then use them to evaluate multiple cloud vendors to find the provider with the proper level of experience specific to the business needs of the IT manager’s company,” he says. “This will allow them to make informed decisions that will ensure the alignment of their cloud vendor choice with their ongoing business needs.”



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SIX QUICK TIPS

Pinpoint Energy Hogs

Save Money & Improve Efficiency By Cutting Down On Power-Hungry Energy Drains

KEEPING THE DATA CENTER RUNNING is not an inexpensive task. It takes energy to run both servers and the power and cooling systems that keep them going, and energy costs money—money that is part of an overall budget that must also account for other expenses in the data center. If inefficient servers and other devices are wasting energy, then, that means there’s less money in your budget for staff and upgrades. Here are some tips for how to give those energy hogs the axe so you can use your dollars elsewhere.

✓ *Monitor Your Energy Usage*

A key step is to make your data center’s energy usage visible, says Paul Bieganski, CTO of Packet Power (www.packetpower.com). “A good monitoring system should make it easy to allocate energy usage by application, budget category, etc.,” Bieganski says. “Letting end users know the cost (both monetary and environmental) to run their systems can make them more open to energy efficiency initiatives.” Don’t fall into the trap of limiting your analysis to certain types of equipment while ignoring others. “Monitor everything,” says Robert Faulkner, sales engineer with Server Technology (www.servertech.com). “The data center is not just servers. Be sure to capture power data from all pieces of equipment. The big three—servers, storage, and network equipment—are all drawing power.”

center that have both underused power and sufficient cooling available to meet the need.” “Your power chain starts with utility, switchgear, UPS, and related auxiliary equipment, backed up by batteries and generators, [which are] all consumers of energy. Consider all of these components, and size each to ensure all are optimized for efficient operation of your power infrastructure,” Hall advises. “Calculate your capacity to match the resulting expected loading from your energy efficiency improvement efforts. Chiller capacity is a key consideration as you optimize your cooling practices.” Another thing to consider is the delta temperature of the cooling system. The delta temp is the difference in temperature between the coolant on the cold and hot sides of a cooling system such as a CRAC (computer room air conditioning) system. “Low CRAC delta temp is not always an indication of using too much energy, but it is an indication that CRACs are not effectively cooling,” says Dan Moscola, product marketing manager at Vigilent (www.vigilent.com). “Low delta T decreases cooling efficiency and is a result of mixing caused by excessive airflow.” According to Moscola, “Units that are not effectively cooling actually act as heaters to the data center. Efficiencies can be increased by creating a more direct way for the hot air to get back to the CRAC. Most data centers are designed with too many CRACs so

electricity. “Legacy energy-hog IT equipment should be replaced, where possible, with Energy Star-rated gear,” Hall says. Bieganski recommends that you replace high-power devices that have a low power factor as measured. “A power factor below 95% on a circuit with reasonable load may indicate a device that is both power-hungry and inefficient,” Bieganski says. “Check that rack for older technology that should be upgraded.” In your quest to root out inefficient devices, you may even find old gear that’s

active, but no longer necessary. “Changes in IT equipment happen so frequently now that it has become difficult to track what servers are actually processing useful information,” Hall says. “It is common for forgotten servers to be left on racks running and consuming energy,” Moscola says. “The benefit of identifying and removing these servers is energy savings two times the IT load you are removing, because you also gain savings from a reduced cooling load.”

“A good monitoring system should make it easy to allocate energy usage by application, budget category, etc.”

- Packet Power's Paul Bieganski

Also, Faulkner says, it’s important to monitor continuously.” Spot measurement on a weekly basis just doesn’t cut it,” he says. “Peak usage needs to be caught in action by continually polling for power consumption over time. Are there usage peaks at 4 p.m. or on Wednesday or on the first of the month? How can you know if you aren’t gathering this data?”

✓ *Police Your Infrastructure*

“Next up, ensure energy-efficient practices for power and cooling infrastructure,” says Jim Hall, marketing manager for Staco Energy Products (www.stacoenergy.com). “Balance out the hot spots,” Bieganski advises. “High power users generate a lot of heat.” Indeed, inefficient IT gear packs a one-two punch: Inefficiency means that more energy is being lost as waste heat instead of doing useful work, and once that waste heat is generated, your cooling system must work that much harder to regulate the temperature of your server room or data center. “Use temperature monitoring to identify areas where your cooling systems are having trouble removing heat,” Bieganski says. “Then add new power load to areas in the data

shutting off the ones that are not effective will improve energy efficiency and lower the average data center inlet temperatures.”

✓ *Virtualize & Consolidate*

If you find yourself faced with obsolete or underutilized hardware, “decommission where possible, and virtualize others,” Hall advises. “During this phase, always consider [a device’s] age.” “Don’t ignore the little guys,” Bieganski says. “The best way to save power is often to run fewer servers at higher utilization.” Running fewer systems with heavier loads translates to virtualization. But what should you virtualize? “Use a power monitoring system to check for circuits that are lightly used and have flat usage profiles across time,” Bieganski says. “Then, virtualize the associated devices where possible.” “Not all applications are targets for virtualization,” Hall says, but he advises to take advantage of those that are.

✓ *Slaughter The Energy Hogs*

Hall recommends removing legacy servers. The idea here is to look for more efficient equipment, which, by definition, can do the same work while using less

Easiest Tip To Implement:

✓ *Use Your Downtime*

“Seize the opportunity to optimize efficiency during your data center consolidations. Although this is a complex and daunting task, including several key requirements can result in huge improvements in the use of energy,” says Jim Hall, marketing manager for Staco Energy Products (www.stacoenergy.com). “When taking your inventory of servers and other IT equipment, make certain you measure loading for each, as well as age and operating characteristics,” Hall says. “Align your plans with efficiency and loading.”

Most Budget-Savvy Tip:

✓ *Remember The Bottom Line*

As you seek out ways to curb energy costs, be aware that some methods can save your business money in other ways, too. “Most of our customers deploy power monitoring at the circuit level, which is far less expensive than monitoring at the device level,” says Paul Bieganski, CTO of Packet Power (www.packetpower.com).

BONUS TIPS:

✓ *Get buy-in.*

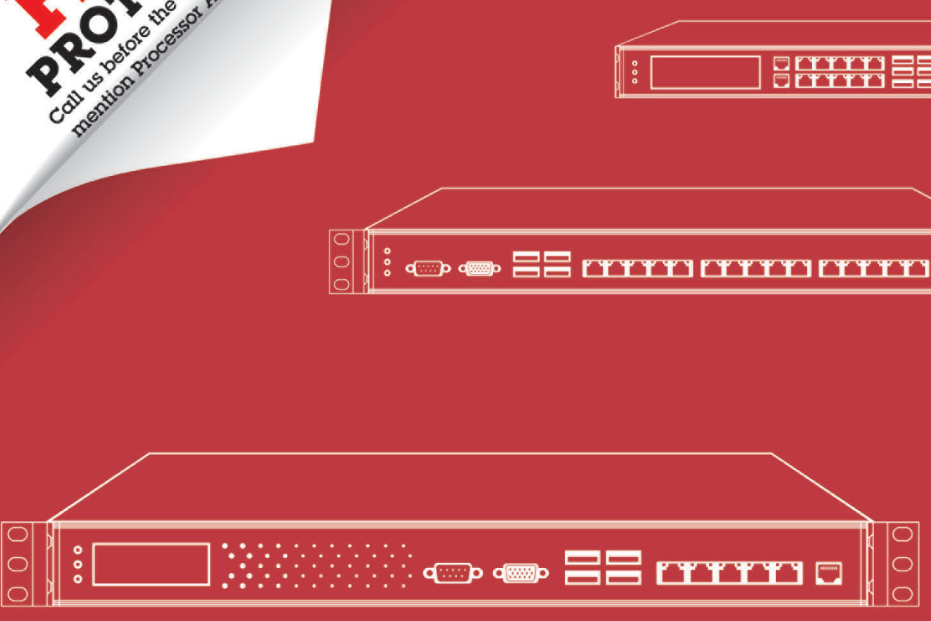
For your energy savings playbook to work, it’s critical to get all relevant staff on the same page. “Monitoring is great, but if those personnel that can affect power usage are not in agreement with its level of importance, nothing can change,” says Robert Faulkner, sales engineer with Server Technology (www.servertech.com).

✓ *Tweak power settings and schedules.*

“After identifying what devices are drawing the most power and when they are drawing that power, it is time to act,” says Faulkner. “Perhaps certain devices can be upgraded with more efficient supplies. Perhaps certain jobs can be moved from 4 p.m. to 1 a.m. or from Wednesday to Saturday.”




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New Approaches To Enterprise Server Solutions

Developing Trends Will Require IT Departments To Adjust Their Plans Accordingly

THERE’S A LOT HAPPENING on the enterprise server front these days, and we’re not just talking about more processor cores or higher-density storage. Technologies such as virtualization, cloud computing, and broad-spectrum consumerization of IT are all forcing enterprise IT server solutions to make the most of existing resources, consolidate and decentralize, and cut costs wherever possible. We spoke to some industry insiders to help us highlight the newest trends and technologies shaping the enterprise server space, provide some insight into how they might affect buying decisions, and help you plan for the future.

The Pulse Of Enterprise Architecture

According to Forrester analyst Brian Hopkins, the top tech shifts that enterprise architects need to be aware of over the next few years are occurring in the mobile computing and infrastructure and operations spheres. The former revolution comes in the form of what Hopkins calls the App Internet, which “is a fundamentally new architecture that leverages cloud-tethered, context-aware mobile devices that interact with each other and our enterprises.” Hopkins adds that this trend is transforming the user experience from something large and universal into smaller, more personalized interactions with whatever devices we own.

Another area that is growing in importance is the consumerization of IT. Although there are as many disadvantages as there are advantages to employees using their personal devices in the enterprise, the trend shows no signs of slowing. In fact, in a decade, one of every two workers will be from the Millennial generation, which is perfectly at-home using mobile devices for both work and play. This trend is only just beginning to permeate the enterprise. As employees continue to bring in devices that are more technologically advanced than the IT systems designed to block them can ever hope to be, Hopkins notes that the successful firms will be the ones that can make the most of “mobile, social, collaboration, and self-service technology.”

Key Points

- Virtualization, cloud computing, and consumerization of IT are the answers to the question of how to make the most of existing resources, consolidate and decentralize, and cut costs wherever possible.
- User experiences are transforming from something large and universal into smaller, more personalized interactions.
- Equipment purchasers will need to weigh the cost of provisioning new gear and recycling current assets against the benefits of upgrading.

Economic Influence

Charles Layne, president and CEO of Signature Technology Group (www.signaturetechnology.com), notes that virtualization is one of the biggest trends facing enterprise server solutions today. “We continue to see customers invest in virtualization via VMware and Microsoft products,” he says. Despite the investments in virtualization technology, however, Signature Technology Group has also witnessed a reluctance to upgrade servers on the old three-year cycle, and a stalling economy is the primary culprit for many of these trends. “Customers are now looking for alternatives to complete system upgrades: virtualized environments, lifecycle expansion of existing equipment, and opportunities to move to the cloud,” Layne says.

As the IT industry adjusts to the economic concerns, however, Layne doesn’t expect equipment manufacturers to remain idle. “SMB customers should expect to see price points continue to drop on server hardware in the WINTEL space,” he says. “With the current PC vs. tablet pressure, HP, Dell, and IBM will continue to compete for every customer.” Some of the most popular products will be designed to help SMB customers utilize their existing equipment and do more with less. Major

asset purchases will give way to virtualization and lifecycle extension.

No tech trends story is complete without mentioning the behemoth of cloud computing, which has had a massive impact on data center operations already but continues to get the IT industry thinking about new ways to leverage its strengths. “Innovative firms are finding ways to take advantage of cloud capabilities to save a bundle and even create new revenue streams,” Hopkins says. “That said, cloud is not always cheaper, and many of our trends address the nuances of various cloud services and what you need to consider in shaping your strategy.”

Big Data Getting Bigger

Hopkins and Lou Fox, CTO and managing director at Bluewolf (www.bluewolf.com), both highlight the importance of Big Data and how companies capable of leveraging data and artificial intelligence to make decisions will reap the rewards.

“With regards to Big Data, there’s really no end to the kinds of insights that

companies who mine their data will achieve,” Fox says. Organizations that fail to capitalize “may fall behind in terms of their ability to analyze customer behavior, manage international logistics, and develop new products.”

Buying Outlook

According to Layne, data center managers and IT equipment buyers planning near-term budgets will need to weigh the cost of provisioning new gear and recycling current assets against the benefits of upgrading to equipment that is more energy-efficient. For most organizations, legacy applications still run well on the current hardware platforms, and those environments should still be able to scale well. “The days of three-year refresh will continue to extend well into four- and five-year cycles,” Layne says. “IT professionals continue to be challenged to do more with less, and the hardware spending will continue to be a line item that CFOs will continue to scrutinize.”

Trend Radar

- Industry experts from Forrester and Signature Technology Group agree that several trends and technologies are reshaping enterprise server solutions in a variety of ways. Here are some of the key trends to keep an eye on.
- Cloud computing:**
Lower costs and more opportunities abound for the organization that fully embraces cloud computing.
 - Consumerization of IT:**
Simply blocking employee's devices may be difficult, but organizations can reap many benefits if they can effectively manage them.
 - Mobile computing:**
Being able to do more work out of the office is of particular interest to cost-sensitive remote and branch operations.
 - Virtualization:**
Doing more with less is more important, especially in light of a stalling economy.

News

Companies Find Cloud Savings Disappointing

Moving to cloud computing may be saving companies money, but so far it's not the mountains of cash they expected, a new survey found. The survey, from CSC and research firm TNS, interviewed more than 3,500 cloud computing users worldwide and found that 82% of global respondents saved money on their last cloud project; however, of U.S.



companies, 23% said they had not saved any money and 35% saw savings of less than \$20,000. Respondents also saw less IT downsizing than expected; only 14% were able to downsize their IT departments, and 20% actually hired more cloud experts. The cloud hasn't been all bad, though: 93% of respondents saw at least one area of improvement in their operations since incorporating cloud computing; such improvements included better efficiency and utilization and lower operating costs.

New Wi-Fi Standard Promises Faster Speeds & Better Battery Life

Wi-Fi is getting a huge step up with its next IEEE standard, 802.11ac, which promises up to 1.3Gbps of real-world throughput—a big improvement over 802.11n's 300Mbps. The standard will combine beam-forming, multiple antennas, and wide bands to provide a broader range, better battery life for Wi-Fi-enabled mobile devices, and more powerful wall penetration abilities, meaning a single device could possibly provide wireless access to an entire home.

Wireless technology maker Broadcom predicts that devices will begin shipping during the second half of 2012, and sales are expected to boom, according to research firm In-Stat, which says shipments will grow from 1 million in 2012 to 350 million in 2015, though In-Stat says 802.11n will still be the dominant technology.

Apple Founding Contract Fetches Large Sum At Auction

The original founding document for Apple, signed in 1976 by Steve Wozniak, Steve Jobs, and Ron Wayne, sold for \$1.6 million in a

Sotheby's auction, including seller fees; the auctioneer was expecting to get \$100,000 to \$150,000 for the document. Ron Wayne is a little-known partner in Apple who helped Jobs convince Wozniak to form the company; days after the contract was signed, Wayne sold his 10% share of the company because he had failed business ventures in the past and didn't want to be responsible for the debt if Apple failed. Had he kept his share, it would be worth about \$3.6 billion currently. The contract was purchased by Eduardo Cisneros, CEO of Miami-based Cisneros Corp.

BUYING TIPS:

Equipment Recycling Services



WHEN YOU WANT TO MAKE SURE your equipment is recycled safely and your stored data is completely erased, choosing the right equipment recycling service is essential. And according to Brian Musil, founder and director of sales and purchasing at Recycle Your Media (www.RecycleYourMedia.com), there is no way for companies to properly handle recycling themselves.

Equipment recycling helps the environment and can slow down the amount of materials unnecessarily ending up in landfills, says Norm Hutton, managing director of sales and acquisitions at DTC Computer Supplies (www.WeBuyUsedTape.net). And the biggest problem, according to Hutton, is that some of this e-waste is toxic.

The need to recycle your unused equipment is about much more than simply cutting costs. Musil notes that e-waste is still the fastest growing municipal waste stream in the United States. Recycling old or unused equipment can also help your company save money and make room for new equipment.

Given that, here’s what to look for when choosing an equipment recycling service.

Accepted equipment and services provided. The first things you should look at are what services the recycling company provides and whether your equipment is accepted by the company for recycling. If you’re looking to recycle used tape media or equipment, for example, make sure the service company you choose can handle the type of media you have. The same goes for other equipment such as computers and servers.

Different companies also provide different services. Most will pay you for equipment that can be reused or let you donate your proceeds to charity. Some equipment can’t be reused, but you can still pay to have it recycled and receive data destruction reports or other documents showing that data was erased. The payment you receive or costs you incur will depend on what you are recycling, so be sure to contact the company to get a quote in advance.

The process. Recycling companies have different ways of getting rid of your IT equipment. Musil says that the first step is contacting one of the company’s specialists who can help you decide whether you need onsite destruction or if you want to send equipment to the company for recycling. Most equipment recyclers are flexible and let you choose the easiest option for your individual needs. And if your company or one of your facilities is international, Hutton notes that you’ll want to be sure the service provider can arrange and pay for shipping from anywhere in the world.

Check for transparency. You’ll likely want as much transparency as possible, so you should make sure the recycling service you choose keeps a history of all the equipment it recycles. You can track your equipment from start to finish and know that your data hasn’t been compromised. And as an added bonus, if you want to buy equipment from one of these companies, some of them can provide information showing when it was recycled and where it came from. ¹²

BUYERS’ CHECKLIST

- ✓ **Cost.** What is the total cost to recycle your equipment?
- ✓ **Compensation.** Will the service pay you to recycle the equipment?
- ✓ **Transparency.** Does the company let you track your equipment and provide proof of data destruction?
- ✓ **Competitive.** How does a company’s price quote and service options compare to other alternatives?
- ✓ **Process.** Will the company pick up your equipment, or do you have to mail it to the company?
- ✓ **Extra features.** Does this company provide any extra services you can’t get anywhere else?

KEY TERMS

- Data destruction report/certificate.**
A document proving that data has been safely and completely deleted from equipment you have submitted for recycling.
- Data eradication.**
The complete erasure of data from equipment, such as tapes and disk drives, so that no sensitive information is lost or stolen during the recycling process.
- E-waste (electronic waste).**
One of the biggest problems facing data centers and IT companies. It covers desktop computers, laptops, blade servers, and other larger infrastructure equipment that is thrown away without recycling.
- VOLSER (Volume Serial Number Report).**
A procedure some equipment recycling services use to track equipment from your company to the recycling facility.

PRODUCT SPOTLIGHT

Equipment Recycling & Disposal

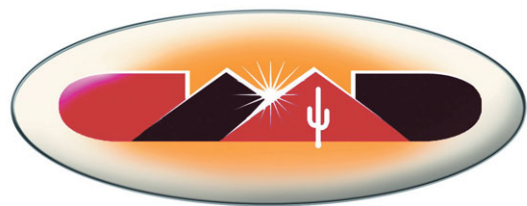
Company	AnythingIT	Apto Solutions	Data Media Source
			 DATA MEDIA SOURCE www.datamediasource.com
Description	<p>With a suite of IT asset management services, including testing, auditing, and DoD data destruction and processing, AnythingIT helps government and commercial clients deal with aging technology and the regulatory compliance issues involved with managing it. AnythingIT's consultants will perform an IT asset review and analysis that uses a fair-market evaluation of your current technology.</p> <ul style="list-style-type: none">Recycle Tomorrow program saves costs in the remarketing and recycling processCan process IT assets at multiple ISO 14001-certified facilities globallyOffers custom-designed channel and non-channel programs for OEMs and integrators servicing both government and commercial clientsKnowledgeable in disposal processing, data mining, and warehouse systems for IT assetsUnparalleled past performance servicing public-sector clientsInnovative trade-in and asset recovery programs <p>Best For: Government and commercial enterprise organizations that need help making cost-effective business decisions for IT storage, disposal, resale, donations, and recycling.</p>	<p>Apto Solutions can help you monetize downsized or liquidated assets, and the company can handle the sales process for you, including market research, valuation, collections, and shipment.</p> <ul style="list-style-type: none">Features compliance programs for environmental, export, data security, and electronic tracking issuesLogistics management for recovery and consolidation to the Apto warehouseInventory Management System lets you track the trade processMaximize return on investment through an extensive contact network and market knowledge <p>Best For: Companies looking for a recovery service with experience, credentials, and expertise in technology remarketing.</p>	<p>Data Media Source buys used tape media, including LTO, AIT, and SDLT, and provides free data destruction, taking care of all the logistic and security concerns you have. Sold media can be turned into cash or exchanged for brand-new media.</p> <ul style="list-style-type: none">Provides value of the tape and details costs involvedTape is shipped with complete chain-of-custody documentationTape is inspected and sorted—you'll be notified of completionOnce inspection is complete, paperwork is processed for payment <p>Best For: Companies in the process of removing or renewing their tape libraries.</p>
Company	Paragon Green	Reclamere	Recycle Your Media
			
Description	<p>Paragon Green can refurbish, reuse, and recycle all types of electronics, including PCs, copiers, and televisions, because of the company's zero-waste policy. All end-of-life electronics are recycled and processed within the United States.</p> <ul style="list-style-type: none">Equipment is refurbished with working componentsFor equipment that can't be resold, the unit is broken down into separate componentsHardware that's too old for resale is recycled for raw materialsData is removed using the DoD's standards <p>Best For: Enterprises that have a variety of electronics to remove and recycle.</p>	<p>Reclamere's experienced team works with you to develop a data security plan tailored to meet your data destruction, data recovery, and IT asset management needs. Reclamere's experts can also help you execute your legal responsibilities for each phase of the IT equipment life cycle, which helps protect your company, employees, and clients from data breaches.</p> <ul style="list-style-type: none">Certified data destructionIT asset management for safe and secure preparation of electronic equipmentIT audit and assessment to evaluate a company's risk levelE-discovery and litigation support to recover information from hard drives for legal procedures <p>Best For: Enterprises most concerned about the security of outdated IT assets.</p>	<p>Recycle Your Media has a proprietary system for fully erasing data tape media cartridges. The process erases each tape from pin to hub with a magnetic degauss power that's 10 times stronger than DoD degaussing standards. Recycle Your Media offers premium pricing paid now on the following media formats: DLT VS160, 3592, T10000 T10K, LTO-4, AIT-4, AIT-5, VXA X-23 tapes, all brands.</p> <ul style="list-style-type: none">100% full-length, pin-to-hub erasure for total securityRecycle Your Media pays for tapes—no more costly shredding servicesFull chain of custody with a certificate of data destructionVolume serial reportsDrive read/write data test and reset to blank tape, ready-to-write statusFinal quality assurance scan step to confirm full erasure, reset, and data integrity <p>Best For: IT staff who want a green alternative for recycling tape media that's out of its retention period and those who need full data erasure and reporting on every tape recycled.</p> <p>Contact: (949) 757-0100 www.recycleyourmedia.com</p>

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Services

DMD Systems Recovery



DMD Systems Recovery works to minimize your risk and maximize your payback, so you'll get a solid return on investment without worrying about the possibilities of regulatory fines, bad publicity, or litigation from data theft on hard drives that weren't properly sanitized. DMD Systems Recovery offers data deinstallation, packaging, logistics, data destruction, recycling, and remarketing.

- Removal and packaging services to preserve value
- Increased ROI through direct purchase or profit sharing
- DoD 5220.22-M-compliant data wipe and NAID-compliant destruction
- Reduced risk through certificates of destruction and compliance and transfer of ownership

Best For: Data centers, call centers, and companies with large centralized operations.

Contact: (877) 777-0651 | www.dmdsystems.com

Frontier Computer



Frontier Computer has been in the business of helping companies plan, build, and maintain their IT infrastructures since 1976. The company buys enterprise-level IT equipment, including servers, workstations, peripherals, storage arrays, and networking.

- Buys excess new or used enterprise equipment
- Offers environmentally friendly end-of-life services for obsolete IT assets
- Cisco, HP, IBM, and Sun hardware
- Global presence helps Frontier respond with speed to customer demands

Best For: Enterprises that want to sell their equipment to a company with decades of experience with IT hardware.

Intechra



Intechra focuses on data security and protecting clients from liability by leveraging technology, processes, and customized solutions into the right mix of end-of-life asset management and disposal services. Intechra's IT asset disposition offers waste-free, worry-free service, covering all steps of the process, including logistics, data security, and the demanufacturing and recycling of materials.

- Ultimate data security protection
- Environmentally compliant disposal
- Comprehensive remarketing, redeployment, and donation strategies
- Full indemnity against risk

Best For: Enterprise or global organizations needing a secure, compliant global IT asset disposal strategy.

Secure MDE



Secure MDE offers a guaranteed solution for end-of-life data. The Secure Shark high-capacity destruction service shreds media your company no longer needs—media that's full of sensitive data, takes up space, and causes you anxiety. Secure Shark can handle jobs of any size, anywhere in the country. Best of all, the process safeguards the environment by recycling 100% of all resultant material.

- Cost-effective: Eliminates labor costs of wiping, disassembling, or degaussing
- Secure: Onsite personnel can monitor the destruction process and verify the results
- Convenient: All destruction takes place at your site; Secure MDE can handle quantities of any size
- Environmentally friendly: Exceeds EPA, OSHA, state, and local environmental laws

Best For: Organizations of any size that want to responsibly, securely dispose of end-of-life media.

WeBuyUsedTape.net



WeBuyUsedTape.net pays top dollar for your new and used tapes. WeBuyUsedTape has been in the business of purchasing new, used, excess, and surplus magnetic media for more than 35 years. It uses regulation-approved, secure data eradication processes and environmentally friendly disposal programs to give organizations a safe and economic incentive for recycling used media. No-obligation, confidential quotes on your tape media are available at any time.

- Simple process: Submit your list of media; receive a confidential, no-obligation offer within 24 hours; and ship your media to us.
- Processes meet HIPAA, Gramm-Leach-Bliley, Sarbanes-Oxley, and other regulation requirements
- Data Destruction Certificates document your transaction and provide proof of complying with recycling and data eradication processes

Best For: Enterprises needing a secure way to dispose of new, used, excess, and surplus magnetic media.

Contact: (800) 821-1782 | www.WeBuyUsedTape.net

World Data Products



World Data Products has partnered with a leading data destruction company to provide a drive- and media-shredding service. Using specially engineered, state-of-the-art shredding machines, World Data Products can pulverize hard drives and tape media into tiny particles, making it impossible for others to restore the data and safeguarding your organization against vulnerabilities from stolen payroll, personnel, and customer information.

- Services available for hard drives, backup magnetic tapes, floppy and Zip diskettes, and optical media
- Drives and media can be destroyed onsite or at one of the destruction facilities
- Drives are recycled or disposed of per EPA standards and local and state laws
- Certificate of destruction verifies the job has been securely completed

Best For: Enterprises in need of secure destruction of sensitive company and customer data on hard drives and other media.

SIX QUICK TIPS

Forgotten Maintenance

Routine Upkeep Can Make Your Data Center More Efficient & Prevent Disasters

A DATA CENTER’S CLEANLINESS should be a key concern for data center managers because it can mean the difference between efficiency and wasted time and energy. And although most data center admins probably perform some maintenance on their servers and server room, there is likely some cleaning, such as on and under raised floor tiles, that is missed along the way. To help with regular upkeep, read on for tips from some industry experts about maintaining your data center.

✓ *Subfloor Cleaning*

According to Kevin Vickery, vice president of sales at ProSource Mission Critical Services (www.team-prosource.com), “Regularly scheduled subfloor cleanings help to prevent dust accumulation inside server components, leading to better reliability.” For example, the concrete pad and plenum under raised flooring can accumulate dirt and dust that falls through holes in the data center’s flooring. The cool air that circulates underneath the data center floor can carry away that debris and push it into the data center hardware, where the cooling is typically aimed. “Subfloor encapsulation of the concrete pad under the raised floor helps reduce dust in the data center that can lead to server component failures,” Vickery says.

Deposited dust can get into circuitry and clog system fans or foul up electronic equipment. Dust in fans can be a particularly dangerous problem for data centers because the reduced airflow can cause servers to overheat, which can lead to repairs that cause downtime in the data center. In fact, says Bill Montgomery, CFO at Premier Solutions (www.premiersolutionsco.com), “Keeping the center free of particulates is extremely vital to the server’s health and performance.” Just a few other hazards of particulates in your airflow include an increased fire risk and the possibility that fire suppressants will falsely identify the dust as smoke and release the fire suppressant onto your data center. Employees that are allergic to dust can also be affected by the environment, and a particulate-filled data center can negatively affect the health of IT staff and employees that regularly work inside the data center. In short, an unmaintained subfloor can create environmental, health, and safety hazards.

✓ *Tile Cleaning*

Many data centers feature raised floor tiles that are designed to remove static electricity. “Regularly scheduled raised floor cleanings help to protect and prolong the life of the raised

floor tiles so that they continue to dissipate static electricity that can cause server failure,” Vickery says. The biggest problem that can arise is when dirt or debris on the tile prevents the floor from properly dissipating static electricity, so a person may continue to build up static while moving

and shock computer components when working on the equipment.


You’ll also want to be careful that you don’t use cleaners or materials that will chip or remove laminate from the tile because the deterioration could also reduce the antistatic effectiveness of the tile. “Sticky floor mats

should be installed to reduce the traffic of debris in the room,” says Michael Petrino, vice president of PTS Data Center Solutions (www.ptsdcs.com). “These can be disposable or a reusable mat that needs to be cleaned.”

✓ *Hardware Cleaning*

Hardware cleaning is probably the least likely type of maintenance to be forgotten, but it’s important to remember that, as outlined above, your valuable equipment is likely where dust and dirt will settle if it’s been blown through the cooling system. It’s best to wipe down or vacuum the equipment, if possible, to rid it of the dust. Additionally, it’s inadvisable to use chemical cleaning agents on the equipment, because the chemical concentrations may be detected by environmental monitoring systems, and liquid may set off any leak detection systems your data center has in place.

✓ *Check & Recheck*

It’s helpful to monitor your systems to make sure nothing seems to be lagging behind. “You can only manage what you can measure,” Petrino says. “So in this case, it is a matter of monitoring and data logging.” To that end, Petrino recommends implementing a comprehensive monitoring system that includes room temperature and humidity; support infrastructure such as UPSes, cooling, power distribution, and generators; servers; and network equipment. You can also invest in data center maintenance management software, which typically includes contracts, drawings, maintenance procedures, and history. 

Most Practical Tip:

✓ *Enlist Help*

If you feel that your IT staff wouldn’t have enough time or would be unable to effectively maintain the data center, you should hire a data center cleaning company to implement a preventive maintenance program. “Lean on your cleaning company for conventional methods of controlling the environment,” says Bill Montgomery, CFO at Premier Solutions (www.premiersolutionsco.com). “Most provide the simple, yet valuable, products in cooling efficiency that will keep your HVAC in balance and not overwork the equipment.” You can even set up a cooling maintenance SLA that will guarantee at least one annual onsite visit.

Additionally, says Kevin Vickery, vice president of sales at ProSource Mission Critical Services (www.team-prosource.com), “Only hire data center cleaning professionals that specialize in cleaning data centers because they have the knowledge, expertise, trained staff, and the proper equipment, as well as the processes, to safely and effectively clean your data center.” A traditional cleaning staff may use harsh chemicals on floors and be unfamiliar with the proper ways to maintain the expensive, delicate equipment in your data center. “The cost of prevention by providing a preventive maintenance cleaning program is a fraction of the cost of downtime for any data center,” Vickery says.

Easiest Tip To Overlook:

✓ *Don’t Forget UPS Systems*

When it comes to ongoing maintenance, it’s important to create a schedule and stick to it for important systems such as UPSes. “Always keep [up with] the annual preventive maintenance of UPSes,” says Premier Solutions’ Bill Montgomery. “We find very often that the maintenance has lapsed, and the end user is unable to receive software updates, check battery life, status logs of the system, and must have the UPS recertified before a maintenance agreement can be reinstated.” An annual onsite data center optimization, preferably performed by a power and cooling expert or service provider, can serve as a health check for your data center. “Your IT center is a dynamic environment and the change in climate needs to be recognized,” he says.

BONUS TIPS:

✓ *Learn best practices from pros.*

ProSource Mission Critical Services’ Kevin Vickery recommends gleaning info from the Association of Data Center Cleaning Professionals (www.ADCCP.org), which is a non-profit trade association that was created in 2011 to educate and protect data centers by developing industry standards for vendor services. It can also help to provide you with best practices, such as recommended equipment and chemicals, and connect you with vendors to help you find a certified provider. Any member of the ADCCP must adhere to the minimum cleaning standards set by the group.

✓ *Track airflow and seal leaks.*

Perform a check of the raised floor to find holes and openings in server cabinets to prevent bypass airflow, which can lower efficiency due to decreased under floor static pressure. The end result of bypass airflow will be hot spot areas in your IT equipment, so you’ll want to seal up those holes in the raised flooring. Another benefit of sealing up the holes is that you’ll help to reduce the amount of dust and dirt that falls under the tiles, so you’ll spend less time cleaning the under-floor environment.



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- Up to 98% Efficient
- Flexible

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- Affordable
- Reliable
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Overcome Storage Virtualization Challenges

Make The Move As Smooth As Possible

VIRTUALIZED STORAGE IS GROWING more and more common in the IT industry. Companies are finding new and creative ways to save storage space or at least efficiently utilize the space they have available. But the move to virtualization can sometimes be a difficult one and there will more than likely be challenges along the way. Here we'll show you a few things to keep in mind as well as a few tips that should help you get through the virtualization process unscathed.

Understand The Different Virtualized Storage Solutions Available

The first step in any large-scale data center investment is to research all of your options. But before you even consider what type of virtualization solution to purchase, you have to know the needs of your company. Once you know what types of applications you want to virtualize, you can choose a solution that will work the best for your specific situation. This will prevent you from investing in a solution that will be more complicated or expensive than necessary.

"The two main types of virtualized storage options available to SMBs are software- or hardware-based storage virtualization," says Ed Hsu, group product marketing manager at VMware. "Software-based storage virtualization essentially leverages direct-attached disks from your servers to create a shared storage resource, whereas hardware-based storage virtualization will use dedicated or proprietary hardware."

Each option has its advantages and disadvantages, which you should know before choosing one. For instance, software-based or "embedded virtualization" solutions can be deployed on your existing storage system and are often simpler to use, but they also have "limited flexibility of connection to other storage devices," says Jim Jonez, senior director of marketing at Dot Hill Systems. In comparison, hardware-based or "external virtualization" solutions use an external processor to add virtualization to a storage system and sometimes allow you to mix different brands of storage arrays, according to Jonez. But Jonez says they are also more complex to deploy and support, so it's up to your IT department to determine what they can handle and what type of functionality they need.

Know The Costs Of Each Solution & Don't Sacrifice Performance

Another thing to consider when looking at virtualization solutions is to consider their overall cost. This is where knowing what applications you want to migrate and how much storage you need beforehand

will be beneficial. The cost of virtualized storage solutions varies, but in general, software-based solutions are less expensive than hardware-based alternatives.

"Because software-based storage virtualization users can use commodity servers and disks, you'll typically get lower total cost of ownership while still enjoying the benefits of a highly available, protected shared storage volume," Hsu says.

"Hardware-based storage virtualization systems are optimized for providing protected shared storage. As a result, you'll typically get better performance and scalability, but this often comes with proprietary hardware, and higher costs."

Although it's important to take costs into account, don't let that force you to sacrifice performance. In many ways, virtualized storage solutions can save you money in

Key Points

- Research and compare the different virtualized storage options available to you and make sure they fit your company's needs before investing in them. Don't forget to compare costs and determine whether or not you'll save money in the long run.
- Take your time during the deployment process and test your virtualized storage solutions in a non-production environment. Migrate applications over an extended period, instead of all at once.
- Determine how you intend to use virtualized storage in the future. Take potential issues into account early on so you'll be better prepared to solve them.

the long run, even if there is a larger investment up front, due to their inherent features. For instance, "thin provisioning allows storage to be provisioned for certain host applications without actually purchasing all the capacity that may be needed up front," Jonez says. Plus, there's the added benefit that with virtualized applications, files, and other resources, you may not need to upgrade your individual computer systems as often, which can be a great money-saver.

Action Plan

- If necessary, upgrade your infrastructure to support the virtualization solutions you want to use.
- After you select a virtualization product, be sure to test it in a non-production environment.
- Back up all your data in a different location before deploying the solution. This ensures that no information will be lost if there is a problem during the installation process.
- Beginning with the least critical applications, migrate data onto the virtual storage platform and deploy those applications one at a time, building up to the most crucial ones.
- If you do upgrade your infrastructure or if virtualization saves enough space that you don't need all of your storage solutions, decommission them and then retire or redeploy them.

Get Started

The easiest way to get started with virtualized storage is to get in contact with a vendor you trust and "work with a reseller that understands your specific needs to recommend a solution that will fit," according to Jim Jonez, senior director of marketing at Dot Hill Systems. Once you've established that relationship, you can discuss the types of virtualization features that are most important to your business.



Top Tips

The following virtualization tips were provided by Don MacVittie, technical marketing manager at F5 Networks (www.f5.com):

- ✓ Consider a mixture of virtualization and the cloud. Use cloud storage in a dead tier where you send files that no one is accessing. As long as it's encrypted, it will reduce expenses and free up more space for crucial virtualized storage needs.
- ✓ Make sure you keep your disks clean and defragment drives whenever possible because those files are used more often. Run disk cleaning tools through the virtualization environment as well as the disks themselves.
- ✓ Always have a plan and understand the tiers of your virtualized storage solution. There will be times when certain disks and drives are full, so you have to be ready to adapt as your virtualized environment grows.

Don't Rush Deployment Or Migration

Perhaps one of the most obvious, but sometimes easiest to overlook, ways to prevent virtualized storage headaches is to slow down the deployment and data migration process. Make sure you test your virtualized storage solutions in a non-production environment first to iron out any kinks and then once you do start to implement them, move low-priority applications and files first before moving on to more crucial ones. Let the migration process occur over the long-term in order to prevent bottlenecks or other issues.

"You have to plan time for the move to virtualization," says Don MacVittie, technical marketing manager at F5 Networks. "You will be moving a lot of files, but it doesn't have to bury your network. You can schedule the move during a downtime for your company, such as after business hours, so it doesn't affect your network."

Consider The Long-Term Benefits & Plan Accordingly

Once your virtualized storage solution is in place and ready to use, remember that it's important to be flexible. "A key advantage of virtual storage architectures is the ability to move volumes to adapt to your changing environment," Jonez says. But it isn't just the solution that needs to be adaptable. As your company grows and you decide to move more applications and files over to your virtualized environment, be prepared to face new challenges that may arise. Hopefully, all of the legwork you put in beforehand will make you better prepared to go with the technology flow. [E]

HOW TO

Implement Unified Communications

Bring Your Employees Together With An All-In-One System

FOR SOME COMPANIES, traditional voice communication systems have been the standard for years, and landline phones with no connection to the Internet have often been the most common tools in those systems. However, there is an alternative to these traditional products that can not only connect your voice communication solutions to your network, but also bring all of your communication solutions together into one system.

Unified communications, or UC, involves the process of combining your voice, email, instant messaging, video, and other systems into one network-connected system. This makes it easier for employees to connect with customers as well as with each other. Here are a few tips that will help you get started in the UC implementation process and show you the benefits that unified communications has to offer.

Know What The Network Can Handle

One of the first steps in the UC implementation process should be evaluating your network to make sure it can handle the types of communication products you want to deploy. “Companies should ensure their LAN and WAN are reliable with quality of service implemented to ensure time-critical traffic, such as voice and video, are not impacted by other networking traffic,” says Martin Trigg, regional director at Zultys (www.zultys.com).

After evaluating your network, it’s simply a matter of determining what features will work best for your workforce. For instance, some departments may benefit from having extra tools, such as instant messaging and videoconferencing capabilities, but other employees may only need basic phone, email, and voicemail. Knowing the strengths of your network and the needs of your employees will help inform you on which peripherals will help fill out your unified communications system.

Choose The Right Peripherals

Some companies may assume that they can implement unified communications with their existing infrastructures, but in some cases, that isn’t the best solution. “For many organizations, it becomes obvious that transitioning to a fully integrated UC solution has a lower overall cost and faster return on investment than attempting to reuse existing hardware,” Trigg says. So, in the beginning, the most common investments will include VoIP-compatible phones, monitors for videoconferencing, and a variety of software solutions, such as instant messaging

programs. The key is finding a group of products and services that will work well together.

Once you’ve chosen the peripherals, you’ll soon find that you can connect them to other existing devices inside your companies. Phone calls and voice-mails can be pushed from VoIP phones to smartphones when employees are on the road. Videoconferences can be held in the office, on smartphones and tablets, or on a laptop, so people can be connected regardless of where they are. The right

peripherals make all the difference when it comes to unlocking the benefits of unified communications.

Recognize Places To Cut Costs

There is sometimes a misconception that implementing unified communications is an expensive endeavor; however, although there can potentially be a large investment upfront, there are multiple ways to save money throughout the process. For instance, you can save money in videoconferencing by predicting how employees



Action Plan

- Start out by looking for an all-in-one unified communications system that doesn’t require additional peripheral components. And make sure it is natively SIP (Session Initiation Protocol)-compatible on both the trunking and endpoint sides.
- To ensure compliance, make sure the UC system you choose is based on open SIP standards and is not open-source.
- Perform a network assessment of both your LAN and WAN to make sure your voice quality will be high quality and consistent across the company.
- Establish a formal work method for the staff so that all are using the elements of UC that have been deemed important for the performance of the enterprise. You should use only what you need, but use it consistently and constantly.
- Once the UC system is in place, train your staff on how to use it and make sure your employees understand the features and benefits that are important for them.
- Make sure the software-based segments of your UC system are easily upgradeable so you can keep up with changing technology and know you are getting the most of it.

Get Started

The key starting place for implementing unified communications is to understand that you already have a basic UC system in place. “By definition, the existing enterprise has started with UC, even if it’s only voice, call control, and email,” says Steve Francis, chief sales and marketing officer at Zultys (www.zultys.com). “The next step is to consider the evaluation of needs and deploy the additional elements to meet those needs.” This means that you have to decide what products, services, and features you want to have tied to your UC system that will be beneficial for both your employees and customers.

will use it for internal office exchanges compared to conferences with clients. “Higher-bandwidth video may only be necessary for important client meetings,” says Jim Dossias, Cisco practice director at Logicalis (www.us.logicalis.com). “Lower-bandwidth video is adequate for daily uses like chats, cross-country virtual management, and performance reviews.”

There are also a few inherent money-saving aspects to UC that may not be noticeable in the short term. Companies can reduce travel costs by using UC to “eliminate transportation, hotels, and meals,” according to Steve Francis, chief sales and marketing officer at Zultys. Unified communications can also open the door for remote working opportunities, which can help save money in office space, furniture costs, and more. And because UC systems are largely Internet-based, companies can move traditional phone systems over to VoIP, often for a lower cost. However, you should always keep in mind that you shouldn’t sacrifice performance for savings and only cut costs in places that won’t affect the overall quality of your UC system.

Continue Educating Employees

Implementing your unified communications system is only the beginning. Technologies will continue to change and it will be up to the IT department to educate employees on how to best utilize UC to improve day-to-day interactions with each other and with employees. “Find innovative ways to train users in multiple formats so you can reach everyone, from the techie who loves to read manuals to the salesperson who prefers a how-to video,” Dossias says. The only way a new system of any kind can be truly effective is if it used regularly by employees.

Key Points

- Start by assessing your company needs and only purchasing the peripherals you know your employees will use. Evaluate your network to make sure it can handle the UC products you want to deploy.
- Cut costs whenever possible without sacrificing quality or performance. Understand the savings-related benefits that are inherent in unified communications.
- After the system is in place, don’t stop training employees in how to best utilize it. Keep educating them on new features and new ways to use UC.

Top Tips

- ✓ Consider a unified communications system that is based on the open SIP standard. This will ensure that it is flexible and cost-effective compared to traditional voice services.
- ✓ Run a trial deployment with a specific department or other group of employees to make sure the UC system works as planned.
- ✓ According to Martin Trigg, regional director at Zultys (www.zultys.com), having email down for two hours is an inconvenience, but having voice communications down for two hours can be a disaster. It’s important to maintain support for your UC system and make sure that manufacturers are ready and able to help if a problem does arise.

Key Points

- Advanced persistent threats, or APTs, are cyberattackers with the resources to use multiple attack vectors and the motivation to keep attacking a particular organization repeatedly for a long period of time.
- Although APTs usually target government agencies and large enterprises, they may also try to infiltrate smaller organizations if they provide a weak link for gaining access to the targeted organization.
- Defense-in-depth and agile defense strategies can help organizations defend against APTs.

Advanced Persistent Threats

APT's Use Multiple Methods To Attempt To Access Networks & They Don't Give Up Easily

RECENTLY, SOME HIGH-PROFILE CYBERATTACKS have brought the phrase “advanced persistent threat,” or APT, into more common use; for example, in 2010 Google revealed that it and 33 other companies had been the victims of a long-term, sophisticated APT attack originating in China.

Organizations of all types and sizes find these incidents troubling. Eddie Schwartz, chief security officer for NetWitness (www.netwitness.com), notes, “Because these APTs tend to highlight the failures of information security in some pretty high-profile companies that are using traditional best practices to information security, the outcome is alarming to organizations who are trying to figure out defensive techniques.”

As a result, IT managers at many small to midsized enterprises are wondering what exactly APT is, how it’s different from other cyber threats, and what they can do to combat the risk.

■ NOT YOUR AVERAGE CYBERATTACK

The majority of cyberattacks occur when hackers see an opportunity to make a quick buck by stealing credit card numbers or

similar information. Gunter Ollmann, vice president of research at Damballa (www.damballa.com), explains, “APT’s are different from the other security threats that organizations face on a daily basis due to the patience of the adversary and the planning that goes into constructing an attack.”

Although any organization can become the victim of a garden-variety cyberattack, Schwartz says that APTs threaten data belonging to “organizations who have some sort of asset that would be of interest to a nation-state or group acting on behalf of a nation-state downstream in some way.”

In its “Managing Information Security Risk” paper, the National Institute of Standards and Technology (www.nist.gov) defines APT as “an adversary that possesses sophisticated levels of expertise and significant resources which allow it to

create opportunities to achieve its objectives by using multiple attack vectors.” In addition, NIST says this type of attacker is persistent, adaptable, and determined in its attacks.

These attacks often abuse trusted connections. Unfortunately, this type of attack is both difficult to detect and nearly impossible to prevent.

■ IS YOUR COMPANY AT RISK?

According to Ollmann, “If [SMEs] hold strategic data that could be leveraged by nation-states to their advantage, then yes, they should be very concerned. Similarly, if they subcontract to large and strategic organizations, they may similarly be targeted by APTs because they may be a weak link for infiltrating the true target.”

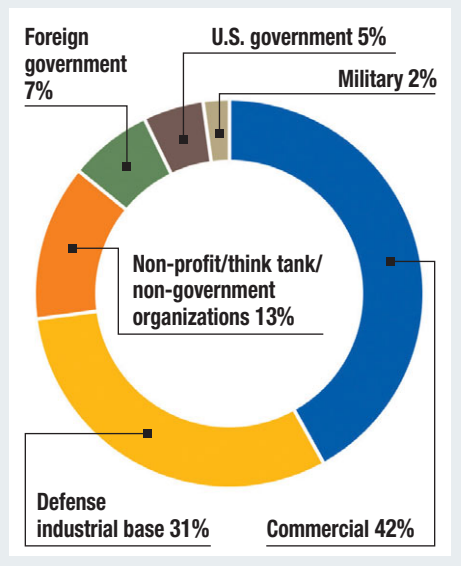
How can you defend your data center against APTs? “Defense-in-depth and the deployment of best-of-breed technologies is mandatory,” Ollmann says.

NIST advises a strategy that combines traditional boundary protection with agile defense. “Agile defense assumes that a small percentage of threats from purposeful

cyberattacks will be successful,” the agency explains. “Agile defense employs the concept of information system resilience—that is, the ability of systems to operate while under attack, even in a degraded or debilitated state, and to rapidly recover operational capabilities for essential functions after a successful attack.” P

Percent Of Overall Victims By Sector

In a 2011 report, security vendor Mandiant found that 42% of the APT incidents with which it was familiar targeted commercial organizations.



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File Systems Update

Data Stores Are Growing, But File Systems Remain Largely Stagnant

FILE SYSTEMS PROBABLY AREN'T at the top of most data center managers' minds. In general, the hardware determines the file system. If you're running a Linux-dominant shop, you might be using XFS or ReiserFS, whereas Windows shops use NTFS or FAT. But as data centers continue to deal both with the onslaught of data and the migration from static to dynamic architectures, file systems are starting to come under increased scrutiny. "In the old world, you would have a network configured, and you'd sit there as a user on that network, and nothing needed to change," says Steve Garrison vice president of marketing at Infoblox (www.infoblox.com). "Today the content and people are moving, and moving in real time, which is causing people to rethink how they're doing business." And unstructured data, such as email, PDFs, and PowerPoint documents, is making up the bulk of mobile data growth. "Trying to figure out how to manage [that unstructured data] at a lower cost point is a big challenge," Garrison notes. "You can't stop it or tell your users, 'Do more with less.' It's a train moving out of control."

when you have billions of files in that file system, it takes a ridiculous amount of time to do recovery because you have to deal with consistency issues."

Scaling Deficiencies

According to Newman, neither POSIX-based file systems nor NTFS-based file systems are designed to properly scale for today's data loads. POSIX hasn't been updated in more than 20 years, and NTFS is behind the times, as well. "The way [NTFS] lays out data and metadata [makes it] extremely difficult to scale 20 or 30TB of storage in a single namespace," Newman says. "These file systems don't scale, and we will have to do checks because hardware breaks," Newman continues. "And when you do, it's going to take significant amount of time." Vendors don't seem inclined to update POSIX, Newman says. "POSIX was written by the U.S. government as an open standard to write programs to [and] handed over to the vendors for control. And despite multiple attempts to get it changed and updated,

the index for all the files, and so forth because of the need to treat that data as one common entity no matter where it is," Stahl says. Stahl cites the example of a big financial services firm that uses a master Microsoft Excel spreadsheet to run its three offices in Europe, Asia, and the United States. "How do you lock and distribute that, aside from not making it a spreadsheet?" Stahl asks. The firm tried sharing from a SAN, but that didn't work. So the firm ended up using a setup featuring the open-source GlusterFS file system (www.gluster.org). According to Stahl, the GlusterFS is a distributed, fault-tolerant file system that maintains file integrity over multiple disks. "GlusterFS lets you take a bunch of disks of any type and address and treat them all as one common file store because of the way they've written the operating system and the indexing," Stahl explains. "It gives you a global namespace that lets you do record-locking on one file across a global infrastructure without worrying about persistence, latency, and other issues."

Key Points

- Many of today's most commonly used file systems aren't designed to handle the increasing amounts of unstructured data organizations are accumulating.
- Despite the risks involved in disaster recovery and related areas, vendors aren't updating file systems in their hardware because there is no cost incentive.
- File systems become increasingly critical as more organizations move toward distributed data centers, where file integrity is a must.

Commoditizing Your File System

If you're in a similar distributed data center situation—and increasingly, this is becoming more common—how do you go about finding hardware that offers the sort of file system that can handle your needs? "You want to be able to do this in as commoditized a fashion as possible," Stahl says. "You could buy a bunch of disks and download [an open-source file system], but at the end of the day, you don't have that support if you get in trouble. If it's that important, you probably don't want to be rolling your own, [unless] you have the overhead or bench strength to support that on an ongoing basis." Stahl's suggestion? "Find a [hardware] vendor that gives you the best service after the sale. Look at the vendor's ability to execute your [file system] needs over the long term and select a service based on that."

"The way [NTFS] lays out data and metadata [makes it] extremely difficult to scale 20 or 30TB of storage in a single namespace."

- Instrumental's Henry Newman

Avoiding The Crash

IT's task, according to Garrison, is to figure out how to warehouse this ongoing avalanche of data. "That's why there has been so much discussion around storage and file systems these days," Garrison says. "Traditional data warehousing techniques don't meet the cost models that people need to have today." Moreover, data recovery becomes problematic using current file system structures that are based on POSIX (Portable Operating System Interface for Unix) or on NTFS, says Henry Newman, CEO and CTO of performance management consultancy Instrumental. "When you have a crash, you have to do a file system check," Newman says. "And

vendors won't talk about it," Newman says. "The vendors say, 'We don't want to change the standards because it costs us money, and there is no incentive for us.' No one will pay for file systems, but they'll pay for hardware. So people just keep throwing hardware at the problem."

Distribution Pressures

The notion of using hardware to handle file system issues becomes problematic in distributed data centers, says Darin Stahl, lead analyst at Info-Tech. "When you start trying to distribute your file system across multiple data centers or sites, issues [crop up] such as latency, access, I/O, who owns

Where's The Innovation?

Henry Newman, CEO and CTO of Instrumental, is aggravated by the relative lack of progression in file systems over the past 20 years. "Back in the '80s when I was at Cray Research, we got the brilliant idea that data and metadata have different access patterns, and we created a file system where we separated data and metadata," Newman says. "It put the metadata on faster devices that did better for small block random I/O vs. large box sequential [I/O]." This sounds pretty rational, given that metadata and data have such different access patterns. So why hasn't this been adopted? To some degree, Newman believes that vendors may be avoiding this change to sell more hardware. But he also suspects that younger IT professionals are ignoring what Newman's generation experienced with file systems. He believes that younger and older generations must collaborate in order to create viable file system solutions.

NTSB Suggests Ban On All Electronic Devices For Drivers

Citing serious accidents resulting from drivers distracted by mobile devices, the National Transportation Safety Board recommended this month that states should make it illegal for citizens to use any electronic device while driving—including hands-free cell phones. The board made its recommendation following an investigation into a Missouri accident where two people were killed and 38 were injured, in which a driver sent and received 11 text messages in the 11 minutes prior to crashing into a tractor-trailer at 55mph. The proposed

regulation goes above and beyond the laws that currently exist banning texting or using phones without hands-free kits while driving, because the board sees problems with driver distractions that exist even when using those hands-free kits. The board itself cannot create laws, but its recommendations are often taken to heart when lawmakers propose legislation.

Cisco Sees Shift In The Nature Of Cyber Attacks

According to Cisco's latest report on the state of

security, large-scale attacks from bot-nets have fallen again, due in large part to increasingly effective efforts by law enforcement to seek out and shut down compromised systems. For example, last month, law enforcement agents arrested the criminals behind a 12 million-computer botnet. Compromised systems have fallen each year since 2009; however, Cisco believes that rather than reflecting a drop in cybercrime, it's more likely that cyber-criminals are simply shifting their focus to



more lucrative, highly specialized attacks aimed at gaining sensitive information. As a result, spam was down from 379 billion messages per day in August 2010 to 124 billion this year, and spam revenue went down nearly 50% year over year to \$500 million. The company predicts that next year the biggest threats will be Trojans, Web exploits, click fraud, and spyware, with special attention given to mobile devices and cloud infrastructure.

Texas Instruments Falls Short Of Expectations

Fourth-quarter sales for Texas Instruments fell short of analysts'

expectations; actual revenue will reach \$3.19 billion to \$3.33 billion compared to previous estimations of \$3.41 billion. The company credits lower demand for a variety of electronics components as well as weak sales in the telecommunications market for the missed revenue. The forecasted earnings-per-share profit for stockholders was also significantly off the mark. Actual fourth-quarter profits will reach 21 cents to 25 cents per share vs. the previously forecasted 28 cents to 36 cents per share.

SIX QUICK TIPS

Automating Disaster Recovery

Planning, Prioritizing & Testing Are Key To Putting Disaster Recovery On Autopilot

MOST COMPANIES HAVE established some level of DR (disaster recovery) program, but more and more enterprises are learning the value of automating the process. Before you leave your manual system behind, check out these tips to be sure you're ready to make the jump to an automated program.

✓ *Get Buy-In*

Before you begin designing an automated disaster recovery plan, it's critical that your organization's key stakeholders agree on the project's scope and objectives and that everyone understands the potential impact of budget constraints. "Create a document that management in your company signs off on which details what you're protecting, to what degree it's protected, and in what way that protection may be exceeded given a certain disaster," advises Mike Chase, J.D., CTO at dinCloud (www.dincloud.com). "Later you will find that costs will mitigate the degree of protection desired, and when a particular disaster exceeds the degree of protection that everyone originally found acceptable and signed off on, you will not be left alone holding the bag."

✓ *Prioritize*

Most enterprises can't back up everything, so you may need to determine which systems or datasets are most critical. "You should start with a priority list before you talk about anything else," says John F. Pearring, manager of sales and marketing at STORServer (www.storserver.com). "Know which systems in your environment you have to restore, and the reason. Some people think they have to restore everything, but it's not true. You don't." He says that, once less important functions and easily replicated data are removed, "the list of applications or systems that are needed in a disaster recovery scenario will be smaller than you think."

"Always start with the basics and work upwards," suggests Heinan Landa, CEO of Optimal Networks (www.optimalnetworks.com). He says IT groups should examine their infrastructures to identify which areas make sense to focus on first. "What is the easiest and most effective thing to automate? Does the automation provide you with advantages over performing it manually? What sort of checks will you have on the automation? Start with the simpler things, like file backup, and get them working, and then move towards the more complicated things." By fine-tuning your processes on less complex systems, you'll be ready to take on tasks that have multiple layers or require more oversight.

✓ *Watch The Timing*

"When selecting an automated DR solution for applications, be sure to confirm that the automation works in both directions and within acceptable time frames," says Josh Mazgelis, product marketing manager at Neverfail Group (www.neverfailgroup.com). He cautions that restoring services may be quick, but bringing systems back to production often requires more time and manual

intervention. "I've seen a lot of customers test their DR solution's ability to get to the DR data center, but then simply turn the production servers back on without using the DR solution's given process. Being able to failover in minutes becomes much less valuable when it takes hours or even days to fully get back into the production data center." He believes that by getting a more complete understanding of each automated solution's design, data center managers will be better equipped to choose the right one for their needs.

✓ *Virtualize*

As virtualization technologies become more mature and robust, Chase encourages data center managers to rely more heavily on them when automating their disaster recovery programs. "Virtualize everything," he says. "Not just your servers, but your desktops, applications, storage, and voice system."

If a disaster forces your business to relocate or spread its operations across several areas, virtualization may offer fewer location-based restrictions and allow your organization to get back on its feet more quickly. "Leaving part of your business behind really isn't an option and only adds to the chaos," Chase says. "Plus, it's easier to move a virtual infrastructure than a physical one. It costs less, too."

✓ *Remember Local Data*

Individual workstations hold an enormous amount of information in many organizations, most of which isn't covered in an automated DR plan. "What's usually left out is the data that people have sitting on workstations that isn't on a server," Pearring says, adding that the common solution—to advise people that their local data won't be backed up—is ineffective, because it often leads to disgruntled executives who've learned their important data was lost. "You can't assume you've solved that problem just because you have a rule," he says.

Pearring adds that trying to get everyone to use NAS is also asking for trouble. Only a DR plan that incorporates all areas where information is stored will be able to give you a reliable recovery point in an emergency.

✓ *Test, Test, Test*

The only way to ensure your DR program works is to test it. "The actual disaster recovery plan begins with the test," Pearring says. "There are things you're going to miss in a disaster recovery plan [if] you do not [test] it." He says that every recovery test, no matter how sophisticated, is likely to return errors, and ramping up employee participation during testing will help you understand how the plan is likely to hold up during an actual emergency.

"Regular testing of DR solutions is a very important task for many reasons," Mazgelis adds. "Even with a fully automated solution, IT needs to know how to enact the process, what to expect from the process, and how to enact the process of moving back to the original

Most Practical Tip:

✓ *Remain Vigilant*

Heinan Landa, CEO of Optimal Networks (www.optimalnetworks.com), recommends that data center managers maintain what he calls a "healthy skepticism" about automated disaster recovery and says they should be constantly asking if their plan really works. "I also believe that you need to properly establish recovery time objectives and recovery point objectives for each application or type of information or service that you are trying to automate the disaster recovery for, and see if it really bears out in live testing," he says.

Most Overlooked Tip:

✓ *Monitor Connectivity*

It's important to keep network connectivity in mind when implementing an automated disaster recovery program. "With the multitude of firewall rules, network subnet routes, and IP-specific whitelisting, the move to a DR site often identifies something that has been overlooked," says Josh Mazgelis, product marketing manager at Neverfail Group (www.neverfailgroup.com). He says that issues such as mail relay accessibility and VPN access sometimes become unexpected sticking points. "During testing, IT staff become focused on making sure that applications are running, and sometimes it's not until the users get involved that those connectivity problems get highlighted."

BONUS TIPS:

✓ *Know your enterprise.*


"Document your entire infrastructure first," advises Mike Chase, J.D., CTO at dinCloud (www.dincloud.com). "You can't plan to protect what you don't know you have." Remember to include legacy systems and individual workstation data.

✓ *Start with the easy stuff.*

"I would say that the easiest things to automate are backup systems," says Heinan Landa, CEO of Optimal Networks (www.optimalnetworks.com). "From there, everything that you automate requires more attention and more time on an ongoing basis."



servers." He also points to the benefits gained by pinging the environment for changes. "It is inevitable that something in the environment has changed since the last test, and sometimes those changes can affect the ability of the solution to work properly or affect the

ability of the protected applications to work in the DR data center." Landa believes the complexity of modern systems doesn't easily lend itself to a "set it and forget it" approach and says that testing is the only way to confirm the program is working. 

Improve IT Training

Get The Most Out Of A Necessary Cost

TRAINING REMAINS AN EFFECTIVE WAY to boost productivity as well as morale in the IT department. Ideally, the money spent on training can pay handsome dividends by improving staffers' skill sets to become even better experts at what they do or to branch out into other areas of IT and handle new job responsibilities. But like any investment, there are also risks to consider.

The amount of money enterprises spend every year on IT training underscores the financial stakes involved. Although training investments have decreased from pre-recession highs of up to \$2,500 per staff member, they still average about \$1,500 per IT employee, according to research firm Computer Economics (www.computer-economics.com).

Given the costs associated with IT training and the amount of time employees spend learning new skills on work time, it is crucial for enterprises to spend wisely, or at the very least, to get more for their money. Here are some ways to make improvements to your IT training strategies in order to better help the IT department and the enterprise achieve their goals.

Get The Big Picture

When deciding how to improve an IT training strategy and to get more out of how money is spent, start by first making a high-level assessment of the overall strategy in place. Now is the time to step back and determine what the IT department's training goals are. Critical areas to assess include where IT training is lacking in the organization as well as positive examples that show how training is directly benefiting the organization. Finally, it is necessary to evaluate how well IT training is helping the enterprise to achieve its business goals.

Making such a critical assessment of the strategy in place is an essential first step when seeking to make improvements to IT training and determining how well it helps the enterprise meet its business goals, says Hayes Nelson, president of CBT Nuggets (www.cbt-nuggets.com). "Training only works if it is being used and if the people who are using it are getting something from it. The IT manager, the end user, and the CEO are looking at IT training at different levels," Nelson says. "So you need to take a step back and assess what is important for everybody."

When seeking more cost-effective training, it is important to realize that a one-size-fits-all approach is ineffective, says Brad Kowal, a director of data centers for Shands HealthCare in Florida. "Each person learns

in their own way. I let my staff tell me what study materials and method they prefer," Kowal says. "The contract between us is that if I purchase the study materials, then they need to pass the test and their responsibility is to pass. It's a win-win situation."

It is also necessary to communicate to the staff that it is up to them to get the most out of the enterprise's investments in IT training by improving how well they study on their own and prepare for the courses. "Simply put, certifications [and other kinds of IT training] are like

college-level classes; since you need to study, you need to know the material, and you will get out of it what you put into it," Kowal says.

The Tools & Costs

Improving IT training involves realizing that methodologies will vary, even among individual vendors, and that they must be assessed on a case-by-case basis.

"Effective tools are dependent on personal and business goals and how they mesh together," CBT Nuggets' Nelson says.


Key Points

- Take a high-level assessment of how effective IT training is in the enterprise and how it helps to achieve business goals.
- Realize that course methods will vary according to the subject being taught and employees' specific needs and preferences.
- Draw on the skills of in-house employees who can serve as trainers to reduce the expense of third-party courses.

It is necessary to realize that costs will also vary significantly. "Costs remain all over the board, depending on the form," Nelson says, adding that a training program can cost as little as \$19 and go all the way up to \$40,000. Classroom or boot camps are the most expensive, which often involve the additional costs associated with travel and time spent away from work, Nelson says. "Generally speaking, [book-based training] is the cheapest, with computer-based training filling up the middle," Nelson says. "It really depends on the solution that works best for any given scenario."

The goal is often to bring staffers up to speed so they can master a particular skill to do their jobs, which can vary widely from learning to administer a new virtual computing platform as part of a server consolidation project or how to use a specialized system for monitoring data center temperatures and airflows. When several employees need to learn the new skills, costs can be reduced by paying for training for one or two staffers who can then teach what they learn to others who need to learn the skills as well, says Mike Taivalmaa, an analyst for TacNaI (www.tacnal.com). "Send one or two of your team members to training and charge them with coming back and holding training sessions with the rest of the team," Taivalmaa says.

In some cases, it may be possible to take advantage of the knowledge and training in-house staffers already have who can teach colleagues skill sets or even ready them for certification tests. "The No. 1 trend right now is that most companies already have highly trained experts on their teams who can be charged with sharing their expertise with other team members or other teams within the organization," Taivalmaa says.

Vendors are constantly offering free seminars or even software training to prospective data center customers. Using the information the employees learn to better master specific tasks represents an additional way to reduce costs. "Empower your team members to look for local free vendor-based training on new technology or software," Taivalmaa says. "[Leading equipment and software vendors] do much of this type of lunch-and-learn training." 

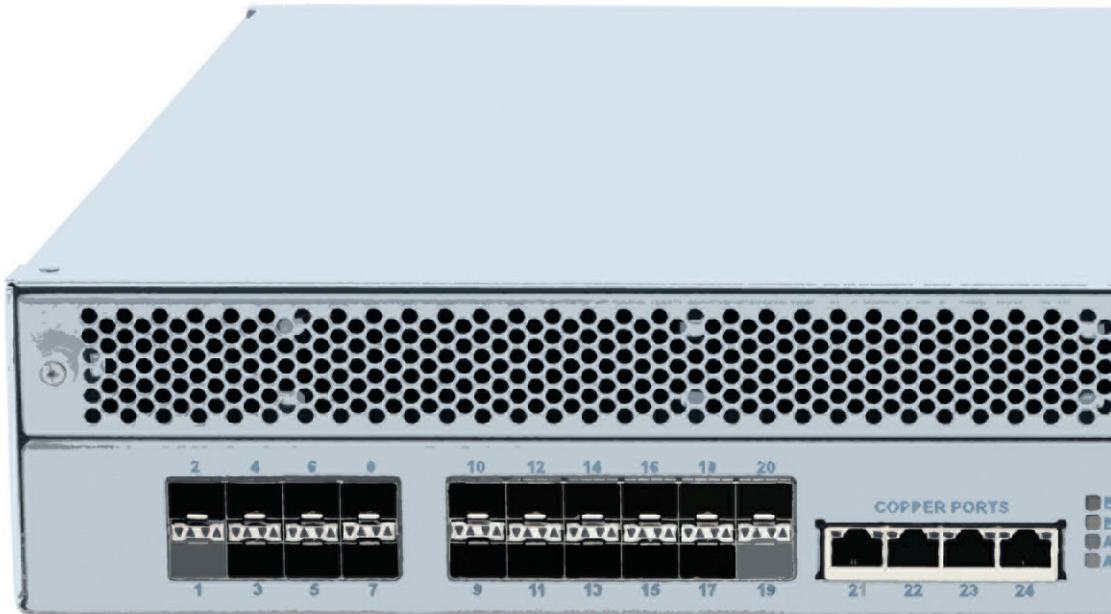
Top Tips

- ✓ Employers can offer to share educational costs when training is not directly related to an employee's job. For example, an employee might want to take courses to prepare for a certificate exam, such as earning a CCNA (Cisco Certified Network Associate) Routing & Switching certificate when his or her job is to offer end-user PC support. The training would make the employee more qualified, yet it would not have much to do with troubleshooting PCs. In this case, the enterprise might offer to pay half of the cost while, as a matter of policy, it could shoulder all training costs if the skill is essential to the staffer's job, says John Matzek, CEO of Logic IT Consulting (www.logicitc.com).
- ✓ Training helps to raise the employee retention rate at most enterprises, says John Longwell, an analyst for Computer Economics (www.computereconomics.com). "Training seems to help with IT staff retention, so if this trend continues, you may also see an increase in spending on training," Longwell says.
- ✓ Ideally, employees will gain skill sets that will lead to merit raises. "If someone learns new skills, does a better job, and then gets a raise, then they are more likely to stay," Matzek says.
- ✓ Investing in online or computer-based training can eliminate the need for employees to travel for training purposes, says Mike Taivalmaa, an analyst for TacNaI (www.tacnal.com). "Pay for computer-based training that can be done as a group or that allows multiple team members the benefit of training without the high cost of travel and accommodations," Taivalmaa says.



BUYING TIPS:

Network Monitoring



THE HEALTH of a company’s network is crucial to its productivity. As such, choosing the right monitoring system increases the commercial worth of your business, says Steve Francis, founder and chief product officer for LogicMonitor (www.logicmonitor.com). “Monitoring is needed to reduce outages and improve performance and availability,” Francis says. “While it needs to be done effectively, the amount of time spent configuring and managing the monitoring will reduce the ROI of the [system], as it takes the IT staff away from adding more value to the enterprise.”

As you evaluate how you’re going to manage your unique network and improve metrics overall, take into account the following key elements of network monitoring.

Weigh support options and customer testimonials. Because you’re making a decision to partner with a service provider or roll out network monitoring software, you’ll want to assess the quality of every potential vendor’s ongoing support. Francis says that support can be a big differentiator, because there’s always some level of learning. He recommends determining how available and engaged the support or on-boarding process is.

Customer recommendations as well as testimonials from the media and product reviewers should ease the burden of this process. According to Ken Sanofsky, general manager for North America at Paessler (www.paessler.com), “Every vendor is going to tell you they have the best product, but if you look at their customer testimonials, user stories, case studies, customer surveys, feedback from the press, and third-party product reviews, you’ll get an honest picture of whether a solution is what the vendor says it is.”

Look for business impact, not just features. Francis advises against comparing feature lists and instead recommends comparing the business impact of the monitoring systems you’re researching. He explains that one system may have a bevy of features, but the way they’re implemented means significant user time is required in order to utilize them. “Another system may only implement 80% of the desired features, but the missing 20% may only rarely be used and have minimal business impact,” Francis says. “Any system that allows the same IT staff to effectively monitor more systems is a better choice.”

Don’t overlook ease of use. Both Francis and Sanofsky agree that a network monitoring solution that’s not easy

to use isn’t much good. “Network monitoring software needs to be flexible and fully customizable,” Sanofsky says. “Every business has its own specific needs, so a network monitoring solution that is not customizable or able to monitor different aspects and devices simply won’t work.”

Francis highlights the importance of easily tuning and customizing alerts and thresholds. For instance, he says, you may want different CPU levels to trigger alerts for the different classes of hosts and you don’t want to have to change thresholds on each device in monitoring. [P](#)

BUYERS’ CHECKLIST

- ✓ Do you prefer a service provider or a SaaS-based monitoring system?
- ✓ Does the vendor offer a starter edition or a free trial service?
- ✓ Are you considering outsourced or in-house monitoring?
- ✓ Does the service include an all-in licensing model?
- ✓ Is the product designed for the needs of a small to medium-sized business?
- ✓ What is the default depth of monitoring?
- ✓ Have you decided what changes you’re willing to apply to your budget to cover the cost of new staffing and monitoring solutions?

KEY TERMS

Availability and bandwidth.

“Slow performance and outages can impact the bottom line of your business,” says Ken Sanofsky, general manager for North America at Paessler (www.paessler.com). “Continuous monitoring enables you to find problems and resolve them before they escalate.”

Distributed monitoring.

Sanofsky says monitoring solutions should be capable of monitoring multiple networks in different locations, such as subsidiaries (from headquarters), separated networks, and customer networks.

IPv6.

“Network vendors are preparing for the shift to IPv6, and it’s important that network monitoring solution providers are on board,” Sanofsky says. “Vendors should offer solutions that support the next-generation Internet Protocol, as this is the wave of the future.”

Network usage.

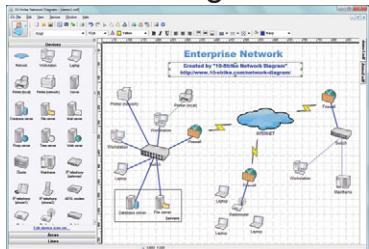
Create individual usage reports and ensure that your network supports common data acquisition methods, including SNMP, WMI, packet sniffing, NetFlow, jFlow, and sFlow, Sanofsky says.

PRODUCT SPOTLIGHT

Network Monitoring

Product

10-Strike Software Network Diagram



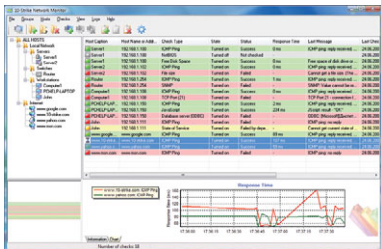
Description

10-Strike Software's Network Diagram for Windows creates maps of local-area networks and exports them to Microsoft Visio or to vector or raster images. By constructing a graphical plot of computers and devices, IT administrators can assess the topology of the entire network. Admins can also edit the diagrams in order to document their LANs or follow new discoveries.

- Scan client sites and networks to analyze the infrastructure and determine how to deploy new devices
- Network Diagram can locate devices with active SNMP agents, make logical connections, and apply icons to form the graphical map
- Print the diagram by choosing the print quality, page position, and map orientation

Best For: Any enterprise that would benefit from a comprehensive network layout map.

10-Strike Software Network Monitor

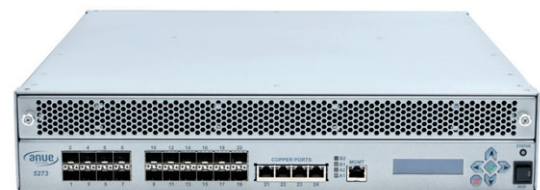


Designed for the Windows operating system, the 10-Strike Network Monitor tracks the behavior of computers, servers, switches, and other devices connected to the enterprise network. In addition, it will monitor databases, files, folders, free disk space, VPN connections, and more. With periodic automatic device polling, the Network Monitor sends ICMP packets to a device, connects to appropriate TCP ports, accesses databases, and checks managed switches through the SNMP protocol.

- Network Monitor keeps you aware of any programs' response to an event, failure, or recovery
- Gives you the network tools to detect failures and respond in an unpredictable event
- Features numerous notification methods, such as on-screen messages, email, SMS, sound alarms, VB scripts, JS scripts, log files, and event log

Best For: Receiving timely alerts about failures and events across the entire network.

Anue 5273 Net Tool Optimizer



The Anue 5273 Net NTO (Net Tool Optimizer) is a carrier-grade, NEBS Level 3-certified solution that helps service providers achieve optimal network performance while meeting the increased bandwidth needs required by growing mobile and video content. The Anue 5273 NTO aggregates data from multiple network access points in a network and ensures the delivery of critical network traffic to the essential monitoring tools for complete network visibility. By enhancing the power of the existing network monitoring tools, network performance improves, team productivity increases, and potential risk of network outages decreases.

- A NEBS Level 3-certified device that meets high-bandwidth demands of mobile and video content
- Add an optional Advanced Packet Processing solution for deduplication, extended burst protection, MPLS stripping, and packet trimming
- Other add-on solutions include an expansion module for CX4, XFP, and SFP+ interfaces and a remote power supply for redundancy

Best For: A good fit for any data center requiring telecommunications and cable service-provided network monitoring switches.

Price: Starts at \$30,000

Product

LogicMonitor Hosted Monitoring



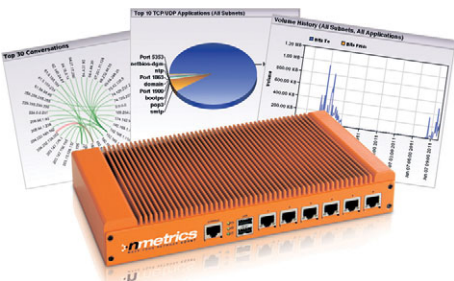
Description

For companies that don't have the staff resources to devote an engineer to install, configure, and maintain an on-premises monitoring system, LogicMonitor's hosted monitoring takes the hassle out of monitoring. With no monitoring infrastructure to maintain, and requiring just minutes to deploy, LogicMonitor provides dashboard views of the health of all your networking gear, servers, applications, databases, storage, and virtual and cloud-based infrastructure, all from a single Web-based console, making it easier to pinpoint the cause of performance issues within complex technology stacks. A powerful alerting system proactively notifies your staff via email and SMS message to issues before they negatively impact your business.

- Unlimited 24/7 email and SMS alerts
- Alert routing and escalation
- Historical trending data stored for one year
- Preconfigured monitoring templates for most data center devices
- Hosted, maintenance-free architecture

Best For: SMBs, enterprises, and service providers that don't want to build and maintain their own monitoring infrastructures.

nMetrics Metascope



nMetrics Metascope is a high-performance, low-cost application monitor designed for small networks or remote sites with up to four subnets. Features include hardware-based monitoring; a high-speed, compression-based database; and standard and customized reports that are produced quickly and easily. The Metascope is designed to deliver flow-based analytics to help customers with capacity planning, troubleshooting, and usage billing in an affordable, easy-to-use, and easy-to-deploy package. By offering views of flow, session, application, service, and end-user levels, the Metascope is designed to deliver complete enterprise-wide network visibility.

- Monitor four subnets with individual link speeds up to 1,000Kbps
- Three levels of entry for different businesses: Metascope Packet Analyser, Metascope Flow Analyser, and Metascope Session Analyser
- Features six 10/100/1000 Ethernet ports for in-line monitoring from router to switch or offline switch mirror port
- Deployment is underway in hours, so you won't have to wait weeks to track network problems

Best For: Networking managers who want to pinpoint the cause of performance issues.

Paessler PRTG Network Monitor



PRTG Network Monitor from Paessler has been recognized worldwide for its rich feature set; ease of use; and simple, cost-effective, all-in licensing model. The latest version, PRTG 9, adds a number of usability and efficiency improvements to streamline network monitoring tasks and save time and money for IT departments and network administrators.

- PRTG Network Monitor covers uptime/downtime monitoring, traffic and usage monitoring, SNMP, NetFlow, and packet sniffing
- Features an all-in licensing model with no extra charges or limitations for advanced features such as traffic monitoring, reporting, or remote site monitoring
- Experienced support engineers and the PRTG development team are available to answer questions around the clock
- Designed to monitor LANs, WANs, servers, Web sites, appliances, URLs, and more

Best For: Companies looking for around-the-clock support for continuous monitoring tools.

Price: Licenses start at \$400 for 100 sensors and increase from there depending on the number of sensors needed

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Anue 5288 Net Tool Optimizer



The 5288 NTO (Net Tool Optimizer) is a high-density network monitoring switch that provides up to 64 10GbE ports or up to 16 40GbE ports in a compact 2U form factor. The Anue 5288 NTO aggregates data from multiple visibility points in a network and ensures the delivery of critical network traffic to the essential monitoring tools. The Anue 5288 NTO helps large enterprises monitor an increasing number of 1GbE, 10GbE, and 40GbE ports with their existing monitoring tools.

- Features front-to-back airflow and scalability for configuration options
- The non-block architecture (with 640Gbps total bandwidth) allows for network access point and full line monitoring tool traffic sharing
- Saves energy with a 2U design and low power consumption
- Capable of reducing network downtime

Best For: Ideal for enterprise data centers with increased bandwidth requirements due to higher processor density, virtualization, and SANs.

Price: Starts at \$72,000

Extreme Networks Ridgeline



The Ridgeline network and service management tool from Extreme Networks is a scalable, full-featured solution designed to provide timely updates for IP-based networks while simplifying network configuration, provisioning, and troubleshooting. Data center managers can get a topology view of the network, monitor with flexible scripts, and acquire network-wide data for both devices and users.

- Customizable installation lets administrators control the service management features
- Data Center Feature Pack supports ExtremeXOS network virtualization
- EAPS monitoring and configuration checking
- Includes audit logs and role-based access control

Best For: End-to-end monitoring of critical enterprise network processes.

Infinera ATN

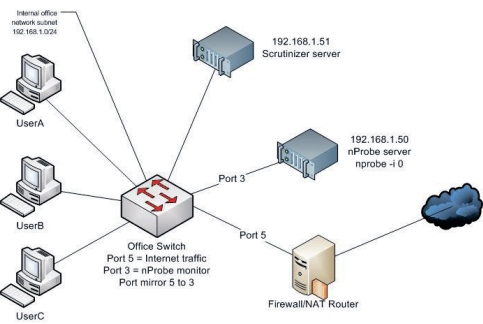


Capable of providing streamlined service management within the entire network, Infinera's ATN platform is a budget-friendly, small form-factor granular add/drop solution. ATN reduces the need for intermediate switching equipment, thanks to its bandwidth virtualization feature.

- Features power management automation, simple installation, and universal service modules
- The forecast-tolerant design helps regulate network costs and traffic growth
- Includes multi-service aggregation line cards, optical amplifier, and a high-density CWDM/DWDM platform

Best For: Applications such as regional network extensions, metro core extensions, and wireless backhubs.

Plixer nProbe



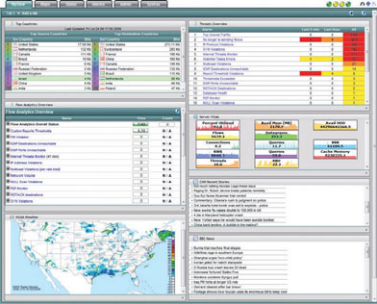
Plixer nProbe is a NetFlow v5/v9 probe that can be used to monitor NetFlow flows. With nProbe, you can analyze Gigabit networks at full speed with little to no packet loss. In addition, it functions as both a probe and collector when installing the nTop collector option.

- Analyze NetFlow flows generated by your border gateway
- Replaces the embedded, low-speed NetFlow probe available on your router or switch
- Sends flows toward a collector

Best For: Managing a network that supports packet reception via passive tap or switch mirror ports.

Price: \$495

Plixer Scrutinizer NetFlow & sFlow Analyzer



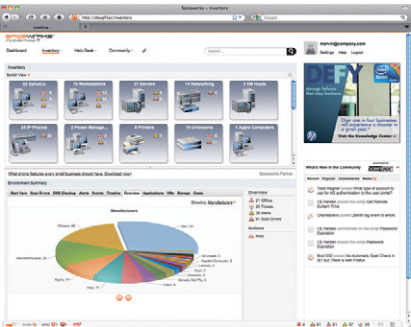
The Scrutinizer NetFlow Traffic Analytics solution from Plixer provides organizations with powerful insight into application traffic, bandwidth utilization, and security threats while providing powerful troubleshooting and forensics capabilities.

- Data center managers can archive infinite years of data during different periods
- Receive reports for top applications, conversations, flows, protocols, subnets, and other devices
- Supports reporting and alarming for SYN, NULL, FIN, XMAS scans, RST/ACK worms, and more

Best For: Monitoring, saving, and assessing data movement on the network.

Price: Free 30-day trial; \$3,495 to upgrade

Spiceworks



The Spiceworks social business network for IT combines free network management and help desk software with a rapidly growing Facebook-like community of IT professionals. More than 1.7 million IT pros at organizations of all sizes use Spiceworks to collaborate and manage everything IT, from cloud-based services to on-premises technology products.

- Monitor recently changed software and find any software that's scheduled for compliance checks
- Manage your cloud network via a dashboard that displays ISP, DNS, rackspace, and Google apps
- Create and receive alerts for Windows when you want them

Best For: Keeping track of disk space, antivirus subscription renewals, servers, and bandwidth utilization.

Price: Free

Check Out Used Equipment Before You Buy

A Little Bit Of Detective Work Can Help Ensure Quality

FOR ORGANIZATIONS INTERESTED in saving money, refurbished equipment offers good quality for a great price. Sometimes, though, customers aren't quite sure what to expect. Are used components banged up and dirty? Will everything work when it arrives? Do their purchase orders match what they received? Learn how to become a used-equipment sleuth and avoid problems before you buy.

Beware the "too good" price. The old adage certainly applies to refurbished equipment prices: If it seems too good to be true, it probably is. "I find that buyers who are new to purchasing refurbished equipment make that mistake more often than any other, where everyone has quoted \$3,500 but one vendor has the thing for \$1,000," says Benjamin Ingwersen, vice president of Frontier Computer (www.frontierus.com). "Chances are there's probably some issue with that one." Instead of reveling in your good luck when you get an unusually low quote, put on your skeptical face and dig a little deeper.

Pay attention to part numbers. Savvy buyers check part numbers ahead of time, because you don't want to receive equipment that's close to—but not exactly—what you thought you were getting. "For example, after-market memory is often less expensive than memory that has an HP sticker on it," says Morris Scott, president of DMD Systems Recovery (www.dmdsystems.com). "This may not mean that the aftermarket memory is inferior, it may just mean that the customer didn't get what they paid for." Checking that components carry only original part numbers is a good way to know exactly what you're buying.

Ask for a trial period. Physically inspecting equipment before you buy it can be difficult, especially if your vendor isn't local. However, you may be able to swing a brief trial period to confirm that everything is in order. "The customer has the right to request a period of time to test and evaluate equipment and return [it] if necessary," Scott says. Test and inspect

the components right away, and contact the vendor if you find any defects.

The payment method you choose could also offer safeguards, such as the dispute resolution available through most credit card companies. "PayPal is also a great one," Ingwersen says. "It makes people

Check those references. To get useful, real-world information about the caliber of equipment typically sold by a potential vendor, get several references and follow up with each. Ingwersen suggests going one step beyond the regular reference check. "Ask them for

Checking that components carry only original part numbers is a good way to know exactly what you're buying.

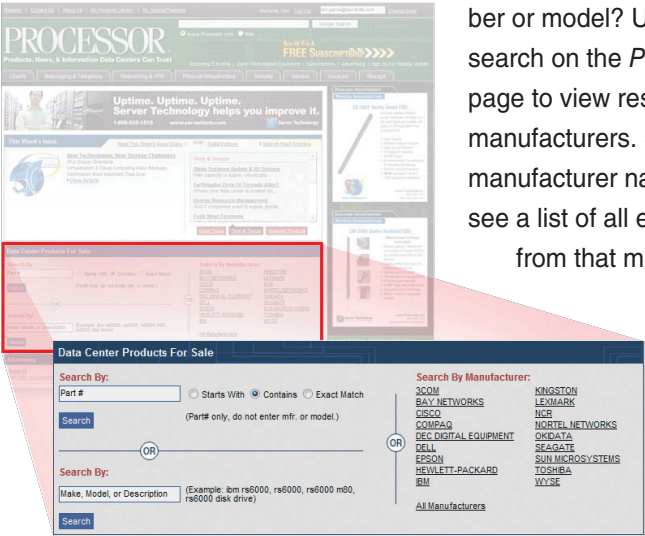
feel very comfortable. They can dispute [a purchase] and get their money back." Depending on your company's buying position and relationship with the vendor, you may also be able to get a sample piece of equipment. This is often a good route for data centers looking for multiple identical components or considering a shift to a new manufacturer or platform.

one good reference and one bad reference," he says. "If they try to tell you they don't have any customers who've been upset with them, they probably haven't been in business long enough." Knowing how a reseller handles unhappy customers is a good indicator of the quality of equipment and service you can expect to receive. **P**

USE PROCESSOR.COM TO FIND USED & REFURBISHED EQUIPMENT

Once you've made the decision to purchase used or refurbished equipment, finding the equipment you need is easy with *Processor's* online Data Center Products For Sale Database.

From *Processor's* home page (www.processor.com), you can search for a specific part number, make, model, or description. Enter the information in the appropriate box and click Search. You'll see a list of available equipment. If you don't see the particular piece you're looking for, scroll to the bottom of the search results page to conduct a more detailed search. There, you can search by part number, model, price, location, and more.



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Choose A Colocation Provider

Areas To Address When Narrowing The Field

GETTING IT RIGHT the first time is crucial when selecting a colocation provider, says Darin Stahl, Info-Tech Research Group lead analyst. For example, SMEs that move equipment into a provider’s space only to have to switch providers shortly after due to lack of foresight will pay a heavy price. “When you get into a colocation, switching costs are enormous,” he says. “This isn’t like buying a bunch of photocopiers, being unhappy with them, and putting them to the curb and getting new Xeroxes in. It’s a big deal to go through switching.” To find a good fit with a colocation provider, consider the following.

✓ *Acquire Enough Power & Space*

Power and space are among the most important factors when judging providers. Where space is concerned, Clive Longbottom, service director of business process facilitation at Quocirca, says to ask yourself what you’re trying to accomplish, whether it’s to move existing or new workloads out of the data center or phase the data center out completely. If you expect to need additional physical space later, he says, get enough initially or negotiate with the provider to leave space around your area to avoid a forklift move from one part of the facility to another. This may cost more upfront, he says, but it will have less impact on the business later.

Greg Elliott, director of business development at 1102 Grand (www.1102grand.com), says checking the redundancy level in place for HVAC, UPSes, PDUs, and other components is also vital. “Not having enough redundancy for your organization’s particular requirements could be catastrophic if there was an outage,” he says; conversely, “paying for too much redundancy is likely to cause an organization to overpay for their colocation presence,” he says. Elliott advises requesting incident logs, maintenance records, etc., to determine how well the facility is run. “Based on meetings and facility tours I have been part of, people rarely inquire about what preventative maintenance programs and contracts are in place for the data center infrastructure,” he says.

As for power, Stahl says pricing is increasingly becoming variable. “It used to be I could go in and get a rack and I would know that for \$340 a month or whatever the flat fee was, I had A-side, B-side power and this much commit,” he says. “Increasingly, though, vendors are enacting power-variation pricing clauses as frequently as quarterly to say, ‘Look, if I get a price increase from my supplier, I’m going to pass this on to you anywhere from 4 to 10%, and I’ll do that on a quarterly basis.’” In such cases, Stahl says obtaining full-metered pricing can mean paying less.

Smartest Tip:

✓ *Know If The Vendor Can Keep Up*

When comparing providers, keep current business trends and the provider’s ability to keep pace with growing technology needs in mind, says Lynda Stadtmueller, program director for cloud computing services at Stratecast. “For example, businesses of all sizes are collaborating more closely with customers (through customer portals) and partners worldwide,” she says. “That type of real-time interaction requires high levels of network bandwidth to be available to your applications. Be sure your colo provider has sufficient bandwidth with reliable backup to support your business growth. Even if you’re not using these technologies today, you soon will be.”

Best Preparatory Tip:

✓ *Gather Requirements*

Vendors will do various things to “make it almost impossible for you to arrive at an apples-to-apples comparison,” says Darin Stahl, Info-Tech Research Group lead analyst. Here, using a request for proposal template can help assess and normalize basic and advanced requirements and help score vendors, he says.

capacity, processes, and systems that can seriously impact your applications.”

A good mindset to have, Longbottom says, is “we’re doing this because it’s the smart thing to do. It may cost more, but the business value will be high, and the business’ bottom line will improve because

of what we are doing.” A bad mindset is “we’re doing this because we believe it is cheaper.” The bottom line may have a

one-off positive blip, he says, but will sink downward as “IT becomes more and more of a constraint, support is not available from the colo provider, growth isn’t managed, etc., and the business finally goes under because it tried to save money.”

✓ *Check Before Signing*

It’s vital that both parties specify upfront what’s covered in SLAs and contracts. “Don’t assume anything,” Stadtmueller says. “Unless it’s specified in the contract, the colo provider probably isn’t responsible for end-to-end application performance, providing redundant network facilities, etc. If you want it, get it into the contract and be prepared to pay extra.” Also make certain SLAs are meaningful, she says. An uptime SLA calculated monthly or annually, she says, may not provide sufficient recompense for actual outages. “For example, 99% availability means you can experience downtime of 3.7 days per year,” she says. “If it happens in increments of five minutes, it may not matter. But if the 3.7 days are in one instance, you may find your business jeopardized with no recourse.” Instead, insist on availability metrics that specify outage limits per instance with appropriate remuneration.

Stahl says to push for the contract to include an annual services review and ability to right-size or contract services so you don’t pay for, say, server space you don’t need down the road. Some of best vendors do this upfront, he says, while others will with a push and some not at all. Later, he says, conduct a quarterly operations style meeting with the vendor to discuss what you did in the space during that time, what worked and didn’t, and what you have planned in the next quarter. Ask the vendor to do likewise, which may result in learning the vendor’s scheduled outages. P

✓ *Rate By Tiers*

To help narrow down potential providers from the vast number available, Stahl says the colocation/managed service providers market can be categorized into three tiers. Tier 1 vendors typically have significant market influence and enormous geographic scale, he says. Tier 2 vendors generally have the same qualifications but less market influence and possibly less geographic scale. Tier 3 vendors are basically everyone else, he says.

A big caution with Tier 3 vendors is “they don’t own multiple facilities, or they might own one and have another facility they don’t control, so they’re wholesaling space out of a teleco hotel someplace” or wholesale space is their actual offering, Stahl says. “They compete on price, and if they don’t compete on price, don’t do business with them because there really is very little value,” he says. Because Tier 3 vendors may not own the facility, he says, they generally can’t offer significant, ironclad SLAs related to the availability of the facility.

✓ *Don’t Buy On Price Alone*

Although price is a factor when comparing providers, it shouldn’t be the driving factor. As Lynda Stadtmueller, program director for cloud computing services at Stratecast, says, “There’s too much at stake . . . to go low bid.” Colocation, she says, “is not a commodity; every provider has different configurations,

BONUS TIPS:

✓ *Cover your weaknesses.*

For SMEs lacking IT resources to provide server installation, perform ongoing maintenance, fix unexpected problems, etc., “look for a colo provider that offers a ‘remote hands’ option” to acquire certain basic maintenance activities on an as-needed basis, says Lynda Stadtmueller, program director for cloud computing services at Stratecast.

✓ *Check reputations.*

Ask potential vendors for references specifically from companies in the same or similar industry as yours and with a colocation footprint similar to what you’re requesting,” says Greg Elliott, director of business development at 1102 Grand (www.1102grand.com). Also, seek out colleagues with experience with the provider for feedback that “may prove extremely valuable to your organization, saving time, money, and your reputation,” he says.



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AITP Wheeling

Jan. 11
White Palace at Wheeling Park
1801 National Road
Wheeling, W.V.
aitp-wheeling.org

AITP Washington D.C.

Jan. 12
Alfio's La Trattorio Restaurant
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Chevy Chase, Md.
www.aitpdc.org

AITP Akron

Jan. 13
4919 Mt. Pleasant Road
North Canton, Ohio
www.akron-aitp.org

Designing & Deploying MS SharePoint 2010

Jan. 16
Max Technical Training
4900 Parkway Drive, Suite 160
Mason, Ohio
www.maxtrain.com

AITP Atlanta

Jan. 19, 5:30 p.m.
Crowne Plaza Ravinia
4355 Ashford Dunwoody Road
Atlanta, Ga.
www.aitpatlanta.org

ISSA

Middle Tennessee

Jan. 20, 11:30 a.m. to 1 p.m.
www.issa-midtn.org

Implementing Microsoft SQL Server 2005 Database

Jan. 23, 9 a.m. to 4 p.m.
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ISSA Baltimore

Jan. 25
Cyber Core Technologies
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Elkridge, Md.
www.issa-balt.org

Core Data Access Development with Visual Studio 2005

Jan. 26, 9 a.m. to 4:30 p.m.
Devore Technologies
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www.devore.com

ISSA

Metro Atlanta

Jan. 27
Atlanta, Ga.
www.gaissa.org

FEBRUARY

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Feb. 1, 9 a.m. to 4 p.m.
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Feb. 6
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San Francisco, Calif.
www.sptechcon.com

Configuring & Troubleshooting Identity & Access Solutions with Windows Server

Feb. 29, 8:30 a.m. to 4:30 p.m.
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MARCH

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www.datacenterworld.com

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March 22, 9 a.m. to 5 p.m.
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You can find more detailed information on these companies and the products they offer inside this issue.

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